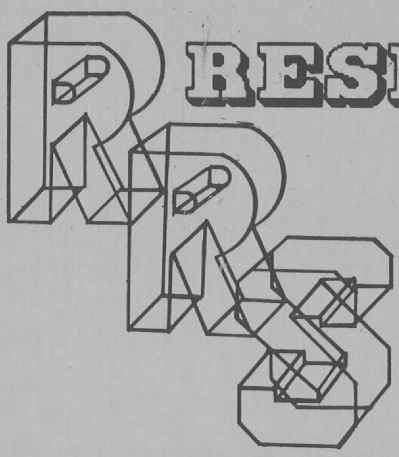

Natural History of Heroin Addiction and Adjunctive Drug Use

Pusat Penyelidikan Dadah dan Ubat-Ubatan
(Centre for Drug Research)
U.N./W.H.O. Research and Training Centre
Universiti Sains Malaysia
Penang, MALAYSIA

NATURAL HISTORY OF HEROIN ADDICTION

AND ADJUNCTIVE DRUG USE

V. Navaratnam
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PENDAHULUAN

Masyarakat antarabangsa pada keseluruhannya dan Kerajaan-kerajaan Sedunia telah membuat perjanjian untuk bekerjasama dan menyokong satu sama lain dalam usaha-usaha meningkatkan mutu kehidupan manusia. Satu daripada inisiatif-inisiatif penting di sini ialah menggalakkan penggunaan ubat-ubatan psikoaktif rasional dan di bawah arahan seorang ahli perubatan dan penceganan penyalahgunaannya.

Pusat Penyelidikan Dadah dan Ubat-Ubatan, Universiti Sains Malaysia telah menumpukan perhatian kepada pelbagai soalan yang penting berkenaan dengan bidang penyalahgunaan dadah selama lebih daripada 15 tahun. Kajian-kajian yang dijalankan untuk menentukan perubahan corak-corak penyalahgunaan dadah merupakan satu unsur. Kajian-kajian kami menunjukkan bahawa sejak akhir tahun tujuh puluhan, penggunaan pelbagai dadah oleh penagih-penagih dadah merupakan satu corak penyalahgunaan dadah yang biasa. Semenjak awal tahun lapan puluhan pula, satu corak baru telah timbul, iaitu penggunaan ubat-ubatan psikoaktif yang bernilai dalam perubatan di antara golongan penagih-penagih heroin. Penggunaan secara meluas ubat-ubatan psikoaktif di luar amalan perubatan, nyata menjadi satu perkara yang membimbangkan oleh kerana keluasan cara penggunaan sebegini dilaporkan berkembang dengan cepat.

Kami, di Pusat ini berasa risau tentang persoalan bagaimana untuk menjamin supaya ubat-ubatan ini boleh terus digunakan untuk tujuan-tujuan terapeutik tanpa menyebabkan masalah penyalahgunaan dadah di kalangan rakyat kita. Dari perbincangan-perbincangan adalah jelas bahawa sebenarnya, apa yang berkurangan adalah pengetahuan mengenai sejarah semulajadi penagihan heroin dan juga peranan ubat-ubatan terapeutik dalam tempat kejadian penyalahgunaan dadah.

Adalah jelas bahawa isu-isu ini komplex. Untuk mengkaji perkara-perkara ini, sesuatu pendekatan multi-disiplin diperlukan. Pembentukan dan pengesahan methodologi penyelidikan disokong oleh Program Penyelidikan Penyalahgunaan Dadah, Pertubuhan Bangsa-Bangsa Bersatu/Malaysia dan dibiayai oleh Tabung Pertubuhan Bangsa-Bangsa Bersatu Untuk Pencegahan Penyalahgunaan Dadah.

Kajian ini bertujuan mencatitkan dengan teliti dan lengkap sejarah penagihan dadah segolongan penagih-penagih opiat di Malaysia. Tambahan juga, ia akan mengkaji corak penggunaan pelbagai jenis dadah-dadah yang digunakan sebelum atau selepas penggunaan opiat. Kajian ini juga cuba menentukan (taakulan) yang asas untuk penggunaan bahan-bahan tersebut dan kesan-kesan mereka dalam peranan-peranan yang dijangkai. Melalui kajian ini adalah menjadi satu harapan supaya satu fahaman objektif didapati mengenai ubat-ubatan yang digunakan bersama opiat.

RINGKASAN

Laporan penyelidikan ini melaporkan hasil-hasil utama daripada temuduga-temuduga berstruktur yang telah diadakan dengan 249 penagih-penagih opiat (97.6% heroin), dari masyarakat awam (di luar institusi), dari pusat-pusat rawatan dan pemulihan dadah dan dari penjara di Negeri Pulau Pinang. Keenam-enam bab yang pertama melaporkan penemuan-penemuan kajian dan Bab Ketujuh pula membincangkan erti penemuan-penemuan ini dan implikasi-implikasinya bagi keputusan-keputusan mengenai dasar dadah.

Memandangkan kepada aliran penggunaan pelbagai dadah yang semakin bertambah, keluasan penggunaan bahan-bahan psikoaktif, sifat dan corak-corak penggunaannya di kalangan penagih-penagih heroin telah dinilaikan. Perhatian khas diberi kepada sifat susunan masa bahan-bahan tersebut digunakan oleh penagih-penagih ini.

Penemuan-penemuan yang awal mengenai penagihan heroin oleh pusat penyelidikan ini boleh disahkan (misalnya penaburan ras, taraf perkahwinan, taraf pendidikan, taraf pekerjaan dan jenayah). Kebanyakan penagih dalam kajian ini berumur dalam lingkungan 25 hingga 35 tahun, umur median untuk penggunaan heroin pada kali pertama adalah di bawah dan hampir 20 tahun. Dua tahun selepas penggunaan heroin pada kali pertama, 95% daripada jumlah pengguna telah menjadi penagih.

Penggunaan heroin biasanya, didahului oleh tiga bahan-bahan kebiasaan iaitu nikotin, alkohol dan ganja. Peranan bahan-bahan tersebut dalam ketagihan heroin pada masa hadapan adalah tidak jelas. Bahan-bahan ini terus diguna sebagai dadah tambahan selepas pengukuhan ketagihan heroin.

Selepas pengukuhan ketagihan heroin dua ubat-ubatan, selain daripada opiat, mula digunakan.

Candu mempunyai dua peranan, pertamanya sebagai dadah yang sama dengan heroin iaitu dari segi memberi keseronokan dan keduanya sebagai bahan yang membantu "mengatasi tabiat ketagihan".

Ubat-ubatan selain daripada opiat yang digunakan terlambat sekali ialah ubat-ubatan jenis benzodiazepin. Penggunaan dadah jenis ini bermula dalam lingkungan masa 3 hingga 6 tahun selepas penggunaan heroin. Dalam jangkamasa 3 tahun yang pertama, hanya 10% mula menggunakan ubat-ubatan jenis benzodiazepin. Penggunaan ubat-ubatan jenis benzodiazepin mula, pada puratanya empat tahun setengah selepas mulanya penggunaan heroin. Median untuk penggunaan lewat ini ialah 5 tahun. Ubat-ubatan ini biasanya digunakan untuk meningkatkan perasaan 'euphoria' yang berpunca daripada heroin dan di kalangan segolongan kecil daripada kes-kes pula untuk tujuan-tujuan terapeutik (untuk mengatasi kesan-kesan pengunduran dan masalah tidur).

Dadah jenis benzodiazepin tidak pernah digunakan secara tunggal di kalangan kes-kes tersebut untuk melahirkan perasaan kegembiraan. Dadah jenis tersebut selalu digunakan dalam sukatan yang rendah (1 - 2 pil). Harga haramnya adalah rendah. Dadah tersebut bukanlah dadah utama yang disalahgunakan.

Di antara ketujuh-tujuh jenis benzodiazepin yang digunakan dan disalahgunakan oleh sampel penagih-penagih heroin ini, Flunitrazepam adalah jenis dadah yang paling biasa digunakan. Dadah ini boleh diperolehi dengan senang ditempat-tempat wujudnya masalah dadah sungguhpun ia telah ditakrifkan sebagai sesuatu ubat yang bahaya semenjak 1983 dan tidak boleh diimpot ke dalam Malaysia mengikut undang-undang sejak tahun tersebut. Oleh yang demikian, kajian ini menunjukkan bahawa tindakan-tindakan pengawalan, meskipun menghapuskan penggunaan bahan ini untuk mengubati penyakit, tidak mempunyai kesan ke atas penyalahgunaan dadah ini. Ubat-ubatan jenis benzodiazepin yang lain diguna untuk meningkatkan kesan heroin, dalam peratus-peratus yang sama dengan flunitrazepam. Terdapat sebab-sebab yang menyakinkan bahawa penggunaan flunitrazepam yang lebih kerap, tidak boleh dijelaskan oleh ciri khas bahan itu dan bahawa ciri-ciri khusus benzodiazepin yang lain tidak memainkan peranan penting dalam pemilihan jenis-jenis benzodiazepin tersebut oleh penagih-penagih heroin.

Kajian ini menyimpulkan bahawa heroin merupakan jenis dadah utama di Malaysia. Penggunaan ubat-ubatan jenis benzodiazepin tidak boleh dianggap sebagai dadah utama yang digunakan. Sebahagian daripada penggunaan yang semakin bertambah pada peringkat-peringkat lewat ketagihan heroin, boleh dijelas melalui sebab-sebab ekonomi. Dengan menghapuskan masalah heroin melalui pencegahan, masalah penggunaan ubat-ubatan jenis benzodiazepin mungkin akan hilang. Walau bagaimanapun, dengan kejayaan yang lebih dalam kawalan dadah [illegible] tanpa kejayaan yang sama dalam pengurangan permintaan terhadapnya, penggunaan dadah yang lain mungkin akan menjadi suatu masalah yang lebih besar. Implikasi-implikasi penemuan-penemuan kajian ini bagi penggubahan dasar telah dibincangkan.

PREFACE

The International Community as a whole and the World's Governments have pledged to collaborate and support each other in efforts to raise the quality of human life. One of the important initiatives here is the promotion of rational medical use of psychoactive drugs and the prevention of their misuse or abuse.

The Centre for Drug Research, Universiti Sains Malaysia has been addressing various questions of importance related to the field of drug dependence for over 15 years. Studies to characterize the changing patterns of drug abuse has been one element. Our studies have shown that since the later part of the 1970's, multiple drug use among heroin abusers have became the normal pattern of abuse. Since the early 1980's a new pattern emerged, i.e. the use of psychoactive drugs of medical value among heroin abusers. The widespread use of these medicinal psychoactive drugs, outside medical practice, clearly became a concern especially since the extent of such use was reported to be expanding rapidly.

One of the concerns of the Centre has been to find ways how one could ensure that these drugs can continue to be used for therapeutic purposes without contributing to the abuse problem of our people. In discussions it was apparent that what was truly lacking was knowledge on the natural history of heroin addiction as well as the role of such therapeutic drugs in the heroin abuse scene.

Clearly the issues are complex. To study them, a multi-disciplinary approach is required. The development and validation of the methodology was supported under the United Nations/Malaysia Programme on Drug Dependence Research, funded by the United Nations Fund for Drug Abuse Control.

The study aims to document carefully the complete addiction history of a sample of opiate abusers in Malaysia. Further, it examines the use pattern of the various other drugs prior to or subsequent to opiate use. It also attempts to ascertain the rationale for their use and their efficacies in their expected roles. Through this study hopefully, one gets an objective appreciation of adjunctive drug use.

EXECUTIVE SUMMARY

This research report presents the main results from structured interviews of 249 opiate addicts (97.6% heroin), coming from the street scene, from treatment centres and from prison in the larger Penang area. The first six chapters report the findings, chapter 7 discusses their meaning and their implication for drug policy decisions.

In view of the increasing trend to multiple drug use, the extent, nature and patterns of use of psychoactive substances in heroin addicts was assessed. Special attention was given to the time sequence in which the substances were used by the addicts.

For heroin abuse earlier findings from this research Centre could be confirmed (such as racial distribution, marital, educational and occupational status, criminality). The bulk of the present sample was aged between 25 and 35 years, the median age for first heroin use being just below 20 years. Two years after first heroin use, 95% of the users are addicted.

Heroin use is mostly preceded by the use of three other habit forming substances, nicotine, alcohol and cannabis. Their role in view of future heroin addiction is not clear. These substances continue to be used as adjunctive drugs after establishment of heroin addiction.

Once heroin addiction is established, two further adjunctive drugs enter the scene.

Opium has a double role, first as an equivalent for heroin in pleasure giving, and second as an aid to "kick the habit".

The latest adjunctive drugs that enter the heroin scene is the class of benzodiazepines. Their use starts 3 to 6 years after heroin use. In the first 3 years of heroin abuse, 35.5% start also to use benzodiazepines. The benzodiazepine use starts on average of four and a half years after the start of heroin use, the median for this delay being 5 years. They are mainly taken to enhance the euphoria derived from heroin and in a minority of cases for "therapeutic" purposes (to combat withdrawal symptoms and sleeplessness). They were never used alone in this sample in order to produce euphorial they were always used in low dosage (1 - 2 pills). Their street price is low. They are not primary drugs of abuse.

Among the seven benzodiazepines used and abused by this sample of heroin addicts, Flunitrazepam was the most frequently used. It is easily available in the drug scene in spite of the fact that it has the status of a dangerous drug since 1983 and is not imported legally since that year into Malaysia. The study thus shows that control measures, whilst removing the substance from therapeutic use, did not have impact on abuse.

The other benzodiazepines are used as boosters for heroin in percentages comparable to that of flunitrazepam. There are good reasons to believe that the more frequent use of flunitrazepam cannot be explained on the ground of a special quality of the substance itself and that specific features of individual benzodiazepines do not play an important role in their preference by heroin addicts.

The study concludes that heroin is the primary drug problem in Malaysia. Benzodiazepines cannot be considered as primary drugs of abuse. Their increasing use in the later stages of heroin addiction is partly explained on economic grounds. By eliminating the heroin problem by prevention, the problem of adjunctive use of benzodiazepines might disappear. However, with more successful control of opioids without concurrent success in demand reduction, the abuse of other drugs might become a major problem. The implications of these findings for policy making are discussed.

CHAPTER 1: INTRODUCTION AND BACKGROUND OF STUDY

1.1 Introduction

Opioids, particularly heroin, are the primary drugs of abuse among an overwhelming majority of drug addicts in Malaysia. The switch from the traditional opium of the early 1900's to heroin has been almost complete in the drug scene of today so that the term "heroin addict" is also used in this study to refer to the few cases of abuse of other opioids (morphine and opium). The drug use history of these addicts indicates that, in the course of their heroin addiction, they have experimented with or otherwise used a variety of other drugs, either on a regular or irregular basis (Foong and Navaratnam, 1987). A recent observation and one which has aroused considerable concern is an increasing trend towards multiple drug use. The use or misuse of other psychoactive substances, particularly benzodiazepines, among heroin addicts has been reported (Foong and Navaratnam, 1987).

Patterns of multiple drug use are complex but can generally be classified into:

1. Use of combinations of drugs of the same pharmacological class

   Some users, for example, restrict their drug taking to specific types of substances, such as depressants (alcohol, sedative-hypnotics, minor tranquilizers and opioids), or stimulant drugs (amphetamines and cocaine), or hallucinogens (including cannabis, LSD).

2. Concomitant use of drugs of different classes, for instance of amphetamine and barbiturate, or of heroin and cocaine in combination. Multiple drug use of this type may also be an unintended result of the poor quality of most street drugs, which contain additives, impurities and substitutions often resulting in unknown combinations which may be mistaken for single drugs.

3. Consecutive or sequential use of two or more substances

   This is frequently undertaken to regulate the time span of a particular drug-induced state. For example, the user who takes stimulants in the morning to produce alertness and increased feelings of energy often requires sedatives at night to induce sleep. In turn, sedatives may make the user feel sluggish and drowsy the following morning, resulting in the intake of a stimulant again.

The self-administration of two or more separate substances is typically undertaken by the user so as to induce a desired pharmacological interaction. Many methaqualone users, for example, are known to prefer the use of the drug in combination with alcohol, because the depressant actions of both compounds enhance each other and produce a drowsy, dreamlike effect (NIDA, 1976). Similarly, LSD users occasionally employ amphetamines in order to enhance effects of the psychedelics. In contrast, drugs of opposing pharmacological classes are often used concomitantly to blunt each other's effects. One of the most common examples of this type of concomitant multiple drug use is the chronic amphetamine user who adds to his stimulant intake barbiturates or other sedative-hypnotics in order to counter some effects of amphetamine (restlessness, insomnia and excitation). Some abuse of this sort could be qualified as therapeutic attempts.

Sequential and/or concomitant multiple drug use may often be the result of a scarcity of the user's drug of choice. In this situation, heroin addicts usually resort to heavy use of sedative-hypnotics and/or alcohol in an attempt to alleviate withdrawal symptoms when heroin becomes unavailable. Once heroin becomes available again, however, the sequential use of depressants is usually abandoned until the next shortage. Some multiple drug users of this type, may become addicted to both heroin and sedative-hypnotics.

The use of psychoactive substances, particularly benzodiazepines, by heroin addicts is a rather recent phenomenon in this region. A study conducted in Thailand suggested that psychoactive substances, such as benzodiazepines, were being used by heroin addicts for two primary reasons (Poshyachinda, 1982). The author claims that there were two main reasons for this, which were (a) to enhance or boost the effects of heroin, i.e. to achieve a better high, and (b) to prevent or suppress withdrawal symptoms of heroin. Related to the latter reason is the use of benzodiazepines as a psychological crutch among heroin addicts, whereby a ready supply of these drugs is maintained in preparation for any appearance of feelings of withdrawal. The abuse of several different psychoactive substances by heroin dependents complicates the drug dependence problem in Malaysia as well as in other countries.

Adjunctive drug use among heroin addicts clearly needs to be understood. To date, no systematic study has been carried out to determine the extent and patterns of adjunctive and/or multiple drug use and abuse among heroin users. On the basis of this gap of knowledge, a study with the following objectives was designed.

1.2 Objectives of Study

General Objectives

1. To assess the extent, nature and patterns of use of psychoactive substances among heroin addicts.

2. To determine the factors associated with the use of psychoactive substances among heroin users.

Specific Objectives

1. To determine the extent of psychoactive substances use among heroin addicts, with emphasis on benzodiazepines.

2. To determine the types of these psychoactive substances and reasons for the choice of these substances.

3. To describe the patterns of psychoactive substances use.

4. To determine the nature and frequency of factors associated with the use of psychoactive substances.

This study aims to provide an insight into the role of psychoactive substances among heroin addicts. This might have implications for treatment, rehabilitation and prevention efforts and could form the basis upon which further studies can be conducted.

1.3 Study Design

An exploratory cross-sectional study of selected heroin addicts from governmental institutions (treatment centres and prison) and from the community was carried out. Information on the development of the extent, nature and pattern of drug use with emphasis on heroin use in combination with other psychoactive substances was collected. Factors influencing the progress of heroin addiction and the use of psychoactive substances were also examined. An outline of this study design was reported by the senior author at the 3rd World Conference on Clinical Pharmacology and Therapeutics, Stockholm, July 27 - August 1, 1986.

1.3.1 Samples Selected

Table 1.1 provides a breakdown of the types and number of drug addicts selected for the study. The addicts from the governmental institutions were selected based on

TABLE 1.1

DISTRIBUTION OF SAMPLES STUDIED

Location Group	No. of Cases
1. Government Treatment and Rehabilitation Centre*	69
2. Penang General Hospital Detoxification Unit*	37
3. Penang Prison	76
4. Street/Community	67
Total	249

* The socio-demographic characteristics and pattern of drug use of Group 1 did not differ significantly from that of Group 2. To facilitate analysis these two groups were combined and referred to as the "treatment group".

purposive sampling. Addicts in the government treatment and rehabilitation centre and in the prison were selected from a list of recent contacts with the respective institution, during the period of fieldwork. Since the study required the addicts to describe in substantial detail their drug-using behaviour, the advantage of selecting those recent admissions was to reduce the problem of recalling the patterns of drug use. Hence, the exact time period of last drug use before admission into the institutions did not vary significantly between the addicts from treatment centres and prison. Addicts from the streets were selected through the snowball technique. Opiates were the primary drug of abuse of each addict selected for study; in 97.6% it was heroin. The grouping of respondents into street/treatment/prison groups will be referred to in this study as location groups. The most important other grouping will be by ethnicity. A sample of 249 addicts was considered satisfactory for an indepth study.

1.3.2 Data Collection

A structured questionnaire was developed and pretested for the study. Interviews were held with the selected respondents. Data were collected over a period of nine months, from February to October.

Types of Information Collected

The types of information collected included:

1. Socio-demographic characteristics
   - o age
   - o ethnicity
   - o marital status
   - o educational attainment
   - o criminal history
2. General drug use history
   - o age at onset of use of each drug
   - o types of drugs ever used
   - o types of drugs currently used (in the treatment/prison groups prior to entering institution)
   - o amount, frequency, duration of use and route of administration of each drug
   - o reasons for initial and continuous use of each drug
   - o types of drugs used in combination with opiates (particularly heroin)
3. Patterns of use of psychoactive substances in combination with opioids
   - o purpose of combined use
   - o main reason for combined use
   - o predominant route of use

- o frequency of use (last 12 months, last 30 days and last 24 hours)
- o time of use in relation to opiate use

4. Sequence of drugs used

By eliciting the age at onset of each drug used, a first indication of the temporal sequence of the different drugs used was determined.

A list of 40 substances was gone through in the interview of each addict.

From the very beginning, it was realised (and incorporated in the research strategy) that heroin use was not continuous since the time when the interviewed person was first addicted to heroin. Interruptions may take place through "kicking the habit", through therapy or through imprisonment. Such an episode of drug use is called a "cycle". In our material most addicts had several such cycles in their history because of relapse. These cycles refer only to heroin in our material, not to the adjunctive drugs. In a smaller sample (27 cases) the addicts' careers were specially investigated. Methods and results of this investigation are reported in Chapter 3.

5. General information on adjunctive drugs
   - o source of supply
   - o price of the drug

6. Urinalysis of a sample of addicts from the street

1.3.3 Data Analysis

All information collected was edited, coded and key-punched into the computer. Data were analysed using the SAS package.

Univariate analysis of each key variable was performed followed by bivariate analysis of important factors. The chi-square test and 't' test were used whenever appropriate to detect for statistically significant differences in observations.

1.4 Structure of Report

This report is divided into seven chapters. The first chapter presents the objectives of study and the study design. Chapter 2 provides the background characteristics of the drug addicts studied. Chapter 3 examines the natural history of heroin addiction. The pattern of drug use by these addicts is reported in Chapter 4. The natural history of adjunctive drug use is presented in Chapter 5. The results of urinalysis are given in Chapter 6. The final chapter discusses the major findings of the study and their implications for policy decisions.

CHAPTER 2: BACKGROUND CHARACTERISTICS OF RESPONDENTS

2.1 Introduction

This chapter examines the background characteristics of the respondents selected for the study. The overall sample as well as each subgroup will be examined. This will provide information on the types of addicts selected for the study and on the extent to which the individual groups differ.

2.2 Socio-Demographic Characteristics

Current Age

The age distribution of the respondents is presented in Table 2.1 by groups of 5 years. 45.8% of the total respondents

TABLE 2.1

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY AGE AND LOCATION

Age (in years)	Location			Total
	Street	Treatment	Prison	
	(67)	(106)	(76)	(249)
Less than 20	1.5	3.8	2.6	2.8
20 - 24	19.4	20.8	14.5	18.5
25 - 29	22.4	33.0	23.7	27.3
30 - 34	22.4	29.2	32.9	28.5
35 - 39	22.4	10.4	18.4	16.1
40 and above	11.9	2.8	7.9	6.8
All age groups	100.0	100.0	100.0	100.0

were between 20 and 30 years old. 44.6% were in their thirties. Seven cases (2.8%) were less than twenty years of age while another small proportion (6.8%) were forty and above. The decade with the highest number of the total group extends from 25 - 34 years (55.8%). In the street population this peak does not show up. However it is marked in the treatment group as well as in the prison group.

Ethnicity

47.8% of the total respondents were Malays, 30.5% were Chinese, 21.3% were Indians (see Table 2.2). There was some variation in the distribution of ethnicity between the three groups of addicts. In Penang, where the sample was taken, the ethnic distribution of the general population is slightly different. In the addict sample the Malays and Indians seem to be slightly overrepresented, while the contrary is true for the Chinese. There was no significant difference in ethnic distribution between the location groups.

TABLE 2.2

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ETHNICITY AND LOCATION

Ethnicity	Location			Total
	Street	Treatment	Prison	
	(67)	(106)	(76)	(249)
Malay	46.3	42.5	56.6	47.8
Chinese	35.8	34.9	19.7	30.5
Indian	17.9	22.6	22.4	21.3
Others	-	-	1.3	0.4
All Categories	100.0	100.0	100.0	100.0

Marital Status

Table 2.3 provides a percentage distribution of the respondents by marital status. Three-quarters of the total respondents were single at the time of the study. A small percentage (15.7%) were married. The rest belonged to the other marital status groups. So, a majority of the respondents from each group were unmarried. This seems to be a strong correlation confirming earlier data (Foong and Navaratnam, 1987).

TABLE 2.3

PERCENTAGE DISTRIBUTION OF RESPONDENTS
BY MARITAL STATUS AND LOCATION

Marital Status	Location			Total
	Street	Treatment	Prison	
	(67)	(106)	(76)	(249)
Single	82.1	74.5	71.1	75.5
Living together	-	5.7	1.3	2.8
Married	7.4	16.1	22.4	15.7
Separated	4.5	0.9	1.3	2.0
Divorced	6.0	2.8	2.6	3.6
Widowed	-	-	1.3	0.4
All categories	100.0	100.0	100.0	100.0

Level of Educational Attainment

A majority of the respondents have achieved a rather low level of educational attainment (see Table 2.4). 35.6% of the respondents had only a primary education, while 44.1% had a lower secondary education. A small percentage (15.4%) had an upper secondary education.

TABLE 2.4

PERCENTAGE DISTRIBUTION OF RESPONDENTS
BY LEVEL OF EDUCATIONAL ATTAINMENT AND LOCATION

Level of Educational Attainment	Location			Total
	Street	Treatment	Prison	
	(67)	(106)	(76)	(249)
No formal education	3.0	1.9	6.6	3.7
Primary	33.3	29.5	46.1	35.6
Lower Secondary	54.6	44.8	34.2	44.1
Upper Secondary	6.1	23.8	11.8	15.4
College/ University	3.0	-	-	0.8
Other	-	-	1.3	0.4
All Categories	100.0	100.0	100.0	100.0

There was a significant difference (at the 0.01 significance level) in the level of educational attainment between the three location groups. A larger proportion of respondents from the street (60.7%) and treatment centre (68.6%) had a secondary education as compared to the proportion of respondents from the prison (46%).

Occupation

Table 2.5 provides the percentage distribution of respondents by occupation. 35.3% of the total respondents were employed as labourers. About 30% were unemployed, while 14.9% were self-employed. The rest of the occupation categories formed a very small proportion of total respondents.

TABLE 2.5

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY OCCUPATION AND LOCATION

Occupation	Location			Total
	Street	Treatment	Prison	
	(67)	(106)	(76)	(249)
Unemployed	50.7	17.9	27.6	29.7
Self-employed	19.4	20.8	2.6	14.9
White-collar employee	1.5	1.9	1.3	1.6
Service worker	1.5	0.9	14.5	5.2
Blue-collar skilled	-	7.6	2.6	4.0
Labourer	25.4	38.7	39.5	35.3
Government employees	-	2.8	1.3	1.6
Others	1.5	9.4	10.6	7.7
All categories	100.0	100.0	100.0	100.0

The distribution of occupational categories among the respondents from the street differed somewhat from that of the other two groups. A significantly larger proportion of the street respondents were unemployed as compared to the other two groups (difference statistically significant at 0.001 level).

2.3 Criminal History

73.9% of the total respondents possessed previous arrest records. Comparing between the different groups the percentage of respondents who were ever arrested previously was lower (61.3%) among respondents of the treatment group as compared to the percentage of respondents from the street group (79.1%) and prison (86.8%) group (difference statistically significant at 0.001 level). That means that 87% of the prison group had already been arrested before the arrest that led to the actual imprisonment.

The number of arrests is shown in Table 2.6. A majority (65.2%) of respondents have had at least one or two arrests. 22.8% were arrested between 3 and 5 times. A small percentage (12%) had more than 5 arrests.

TABLE 2.6

PERCENTAGE DISTRIBUTION OF RESPONDENTS WITH PREVIOUS ARRESTS (184 OF THE 249 CASES) BY NUMBER OF TIMES ARRESTED AND LOCATION

Number of Times Arrested	Location			Total
	Street	Treatment	Prison	
	(53)	(65)	(66)	(184)
Once	35.8	52.3	30.3	39.7
Twice	34.0	27.7	16.7	25.5
Thrice	18.9	10.8	10.6	13.0
4 times	3.7	6.2	10.6	7.1
5 times	1.9	1.5	4.5	2.7
More than 5 times	5.7	1.5	27.3	12.0
All categories	100.0	100.0	100.0	100.0

Generally, the distribution of number of arrest records varied between the three location groups. A larger proportion of respondents from the prison had a larger number of arrests as compared to the proportion of respondents from the street and treatment group. 42.4% of respondents from the prison were arrested more than 3 times, as compared to only 9.2% and 11.3% of respondents among the street and treatment group respectively (difference statistically significant at 0.001 level).

An overwhelming majority (77.2%) of the respondents were arrested for drug-related offences (see Table 2.7). 14.4% were arrested for active income generating ("gain-active") crimes. The other reasons for arrest were insignificant (gain-passive and others).

TABLE 2.7

PERCENTAGE OF RESPONDENTS
WHO REPORTED REASONS FOR ARREST (184 OF THE 249 CASES)
BY LOCATION

Reasons for Arrest	Location			Total
	Street	Treatment	Prison	
	(53)	(65)	(66)	(184)
Use of illegal drugs	2.0	-	23.1	8.9
Drug-related offence	87.8	66.7	80.0	77.2
Violence	-	6.1	3.1	3.3
Crimes for gain-active	12.2	4.6	26.2	14.4
Crimes for gain-passive	4.1	9.1	10.8	8.3
Others	-	4.6	4.6	3.3

Multiple reporting allows the percentage to exceed 100%

Drug-related offence was the primary cause for arrest among all the types of respondents. However, a larger proportion (26.2%) of prison respondents had been arrested for crimes for gain-active as compared to only 4.6% of addicts in treatment and 12.2% of the street addicts (difference statistically significant at 0.01 level).

Ever Imprisoned or Incarcerated

61.4% of the total sample of 249 addicts, had had previous imprisonments. There was a significant difference (at 0.001 significance level) in percentage of respondents who were ever imprisoned between the three location groups. The percentage of respondents with previous prison sentences was high among the prison group (80.3%) and the street group (73.1%). 40.6% of total respondents from the treatment group had previous incarcerations.

TABLE 2.8

PERCENTAGE DISTRIBUTION OF RESPONDENTS
WITH PREVIOUS IMPRISONMENT (153 OF THE 249 CASES)
BY NUMBER OF TIMES IMPRISONED AND LOCATION

Number of Imprisonments	Location			Total
	Street	Treatment	Prison	
	(49)	(43)	(61)	(153)
Once	38.8	51.2	32.8	39.9
Twice	32.7	27.9	13.1	23.5
Thrice	16.3	11.6	13.1	13.7
4 times	4.1	9.3	13.1	9.2
5 times	2.0	-	8.2	3.9
More than 5 times	6.1	-	19.7	9.8
All categories	100.0	100.0	100.0	100.0

Among those respondents who had previous imprisonments, a majority (63.4%) had either one or two previous prison sentences (see Table 2.8). The rest (36.6%) had more than three prison sentences. A larger proportion (41%) of respondents from the prisons had a larger number (more than 3) of imprisonments, as compared to the street respondents (12.2%) and respondents in treatment (9.3%) (difference statistically significant at 0.001 level).

The cause for imprisonment was drug related crimes in 76.5% of the total respondents (see Table 2.9). 15.4% were imprisoned for gain-active crimes, such as snatching, petty theft, robbery, etc. The other reasons for conviction were uncommon. Drug-related crimes was the most common cause of conviction and incarceration among all three types of respondents.

TABLE 2.9

PERCENTAGE OF RESPONDENTS WHO REPORTED THE REASONS FOR ACTUAL AND/OR PREVIOUS IMPRISONMENT (163 OF THE 249 CASES) BY LOCATION

Reasons for Imprisonment	Location			Total
	Street	Treatment	Prison	
	(47)	(52)	(64)	(163)
Use of illegal drugs	2.1	1.9	25.0	11.0
Drug-related offence	87.2	66.7	76.6	76.5
Violence	-	3.9	3.1	2.5
Crimes for gain-active	14.9	2.0	26.6	15.4
Crimes for gain-passive	4.3	9.8	10.9	8.6
Others	-	3.9	4.7	3.1

Multiple reporting allows percentage to exceed 100%

Information on duration of previous imprisonment was obtained from 148 cases. Half of this population had been in prison for 1 year or less. Another 40% had spent 1 to 4 years in prison. Every tenth respondent had been sentenced for more than 4 years. Respondents from the prison tended to have a longer total duration of imprisonment compared to the other two groups.

CHAPTER 3: NATURAL HISTORY OF HEROIN ADDICTION

This chapter deals with the development and progression of the drug-using behaviour of the addicts studied. It entails three broad aspects:

1. The sequence of drugs used by heroin addicts (heroin and adjunctive drugs)
2. Development of heroin use over time
3. Addiction career of selected individuals (n=27)

3.1 Sequence of Drugs Used

The sequence of drugs used by each addict was determined. Information was obtained for 248 of the 249 cases. Data was computed from the first to the 10th drug. The distributions of patterns of drug use in temporal sequence are presented in Table 3.1. The data of this table sum up some of the most important findings of this study. Nicotine (cigarette smoking) is the first habit forming substance consumed in the overwhelming majority of the heroin population studied (88.7%). Alcohol (8.9%), cannabis (2.0%) and heroin (0.4%) were much less frequently reported as first drugs.

In the rank of the second drug alcohol (37.1%) and cannabis (38.7%) are dominant while the opioids (heroin and morphine) come in with 13.7%. As the third drug cannabis (30.2%) remains dominant, while there is a sharp increase in opioids (29.3%). In this third drug rank the first 9 cases (3.6%) of benzodiazepine use appear.

Opioids are top of the list of the 4th drug (63.3%). Cumulated with the second and third drug opioids (heroin, opium, morphine, dihydrocodeine) have been named 261 times by the 249 addicts, which shows that there are quite a few addicts with multiple opioid use. The benzodiazepines show an increasing but still modest levels (flunitrazepam 9.7%).

Opioids are regressing strongly in the list of the 5th drug first used (28.5%). It is here that the benzodiazepines reach their peak (25.4%).

The right half of the Table 3.1 (6th to 10th drug) shows in no category a naming reaching 12%. The almost empty column of the 10th drug justifies the limitation of the investigation to 10 drugs.

TABLE 3.1

DISTRIBUTION OF TEMPORAL SEQUENCE OF DRUG USE

Drug Type	No. of Users (N=248)	1st drug	2nd drug	3rd drug	4th drug	5th drug	6th drug	7th drug	8th drug	9th drug	10th drug
Alcohol	206	22 (8.9)	92 (37.1)	69 (27.8)	10 (4.0)	7 (2.8)	3 (1.2)	2 (0.8)	1 (0.4)	-	-
Nicotine	248	220 (88.7)	21 (8.4)	6 (2.4)	-	-	-	1 (0.4)	-	-	-
Heroin	242	1 (0.4)	33 (13.3)	56 (22.5)	119 (48.0)	22 (8.8)	7 (2.8)	2 (0.8)	1 (0.4)	1 (0.4)	-
Opium	111	-	1 (0.4)	11 (4.4)	36 (14.5)	38 (15.3)	21 (8.5)	2 (0.8)	1 (0.8)	1 (0.4)	-
Morphine	26	-	-	3 (1.2)	1 (0.4)	11 (4.4)	8 (3.2)	1 (0.4)	-	-	2 (0.8)
Cannabis	186	5 (2.0)	96 (38.7)	75 (30.2)	6 (2.4)	1 (0.4)	2 (0.8)	1 (0.4)	-	-	-
Cocaine	1	-	-	-	-	1 (0.4)	-	-	-	-	-
Methaqualone	17	-	-	3 (1.2)	4 (1.6)	3 (1.2)	-	1 (0.4)	2 (0.8)	2 (0.8)	2 (0.8)
Flunitrazepam	142	-	-	9 (3.6)	24 (9.7)	52 (21.0)	29 (11.7)	14 (5.6)	9 (3.6)	3 (1.2)	2 (0.8)

TABLE 3.1 (cont.)

Drug Type	No. of Users (N=248)	1st drug	2nd drug	3th drug	4th drug	5th drug	6th drug	7th drug	8th drug	9th drug	10th drug
Alprazolam	38	-	-	3 (1.2)	2 (0.8)	6 (2.4)	5 (2.0)	9 (3.6)	6 (2.4)	6 (2.4)	1 (0.4)
Diazepam	8	-	-	-	-	-	2 (0.8)	4 (1.6)	-	1 (0.4)	1 (0.4)
Lorazepam	15	-	-	-	-	2 (0.8)	2 (0.8)	5 (2.0)	1 (0.4)	2 (0.8)	3 (1.2)
Triazolam	14	-	-	-	1 (0.4)	2 (0.8)	2 (0.8)	4 (1.6)	2 (0.8)	2 (0.8)	1
Nimitrazepam	8	-	-	-	-	1 (0.4)	3 (1.2)	2 (0.8	2 (0.8)	-	-
Nitrazepam	1	-	-	-	-	-	1 (0.4)	-	-	-	-
Dihydrocodeine	10	-	-	-	1 (0.4)	-	1 (0.4)	2 (0.8)	2 (0.8)	2 (0.8)	2 (0.8)
Other psychoactive substances	30	-	-	2 (0.8)	2 (0.8)	4 (1.6)	8 (3.2)	5 (2.0)	6 (2.4)	3 (1.2)	-

Methaqualone plays a very minor role in this population. This is even more true for the barbiturates; these were named only twice and have therefore been included under the heading "other psychoactive substances".

3.2 Development of Heroin Use

This section examines the stages that were involved in the progression of heroin use, from the point of first use or experimental use, to that of daily use or committed use. The question examines the extent to which heroin was used progressively, from initial (or experimental use), to intermittent (or social/recreational) use, to regular (still social and recreational) use, and finally to daily (or committed) use. Intermittent use refers to irregular use and whenever the opportunity presents itself. Regular use involves the intake of drug at more regular intervals and where the user was becoming addicted to the drug. Daily use is a consequence of addiction and leads to full committment to the drug.

Findings from this study show that addicts differ in their progression of heroin use, i.e. the pattern of development from initial to daily use of heroin varies substantially between addicts. 50.2% of the addicts studied progressed straight from initial use to daily use (see Table 3.2). Only 15.5% had actually gone through the four stages of use, i.e. from initial to intermittent to regular and finally to daily use. One in every four addicts went from initial to regular and then daily use. 8.9% moved from initial to intermittent and then to daily use.

TABLE 3.2

PERCENTAGE DISTRIBUTION OF ADDICTS BY DEVELOPMENT PATTERN OF HEROIN USE

Development Pattern of Use	% of Respondents (n=196)*
1. From initial directly to daily use	50.2
2. From initial to regular to daily use	25.4
3. From initial to intermittent to daily use	8.9
4. From initial to intermittent to regular and finally to daily use	15.5

* Missing information on 47 cases.

Examination of the time lapse between initial use and daily use of heroin, revealed that 76% of the addicts became daily users in less than a year after their first use of the drug (see Table 3.3). 94.4% of the addicts were daily users within two years. The time lapse for the rest was longer.

Tables 3.4, 3.5, 3.6 and 3.7 present the main reasons for initial, intermittent, regular and daily use of heroin respectively. The main reasons reported for initial heroin use were rather varied (see Table 3.4). The most frequently reported reason was curiosity to experience drugs (58.9%). Compared to this all other reasons were mentioned infrequently. Influence by friends was named in the second place (16.2%). To achieve pleasure or relief from boredom were the next in frequency (8.3% and 7.0% respectively). Among the addicts who had used heroin intermittently, 35.6% reported that they used it for fun and whenever heroin was available (see Table 3.5). A sizeable proportion (27.1%) used heroin intermittently to gain acceptance by friends, i.e. to be part of a group. A small proportion (11.9%) used heroin when they felt the symptoms of withdrawal. 20.3% had other reasons for the use of heroin on an intermittent basis.

TABLE 3.3

DURATION OF TIME LAPSE BETWEEN INITIAL USE AND DAILY USE OF HEROIN

Duration of Time Lapse	% of Respondents (n = 196)*
Less than 1 year	149 (76.0%)
1 - 2 years	36 (18.4%)
2 - 4 years	6 (3.1%)
4 - 8 years	3 (1.5%)
8 years and above	2 (1.0%)

* Missing information on 47 cases.

TABLE 3.4

MAIN REASON REPORTED FOR INITIAL HEROIN USE

Main Reason	% of Respondents (n=241)*
To forget his problem	1.7
To experience drugs/ curiosity	58.9
Influenced by friends	16.2
Due to health problem	0.4
For fun and stimulation/ pleasure	8.3
Out of boredom	7.0
Addiction to other drug	1.2
Easy availability	0.4
To substitute cannabis	1.7
Other reasons	4.2

* Missing information on 2 cases.

TABLE 3.5

MAIN REASON REPORTED FOR INTERMITTENT USE OF HEROIN

Main Reason	% of Respondents (n=47)
To show manliness	5.1
Used for fun and whenever heroin was available	35.6
To gain acceptance by friends	27.1
Because of withdrawal symptoms	11.9
Other reasons	20.3

TABLE 3.6

MAIN REASON REPORTED FOR REGULAR USE OF HEROIN

Main Reason	% of Respondents (n=80)
To gain acceptance by friends	27.4
Show manliness	4.1
For the euphoric feeling (kicks)	48.0
Addicted	4.1
Depression	8.2
Other reasons	8.2

TABLE 3.7

MAIN REASON REPORTED FOR DAILY USE OF HEROIN

Main Reason	% of Respondents (n=196)*
Became addicted and had to use to avoid withdrawal symptoms	71.8
For the euphoric feeling (kicks)	20.1
Depression	4.3
Other reasons	3.8

* Missing information on 47 cases.

The pleasure (or euphoria feeling) derived from the use of heroin on a regular basis was reported by 48% of the addicts (see Table 3.6). One in every four addicts was on regular use of heroin to gain acceptance by friends. 8.2% used heroin regularly because of depression.

An overwhelming majority (71.8%) of addicts began daily use of heroin because they were addicted to the drug and had to use the drug to avoid the withdrawal symptoms (see Table 3.7). 20.1% of the addicts maintained daily use of heroin for the primary reason of deriving the feeling of euphoria. Depression had led 4.3% into daily use of heroin.

3.3 Heroin Addicts' Careers

Besides collecting information on the drug-using patterns of the addicts, the study has also gathered information on the amount of time each addict spent with heroin addiction, incarceration, treatment of drug addiction, life in the community in abstinence, and information on relapse. This provides an indication of the addicts' careers after they have started heroin addiction. Here, the heroin addicts' career is viewed as the patterned distribution of drug-using behaviour over time: the interplay of periods on and off drugs with time spent incarcerated. Each period of drug use is called a cycle.

For the purpose of describing a profile of addicts' careers, addicts who had eight or nine years of heroin addiction were selected from the total sample. Out of the 249 cases studied only 27 cases were found to be in their eighth and ninth years since they first started heroin use. Since the number of cases is so small, we can only treat this part of the study as exploratory and the findings are not conclusive.

The following data were examined:

A. Periods of heroin addiction:

   a. Duration of heroin addiction.

   b. Number of separate cycles of heroin addiction.

B. Interruption of addiction:

   a. Number of times in treatment.

   b. Duration in treatment.

   c. Number of times incarcerated.

   d. Duration of incarceration.

   e. Number of periods of voluntary abstinence.

   f. Duration of abstinence in community.

Admittedly the present description of the addicts' career is incomplete because information on the other aspects of the addicts' life such as his sources of income, living arrangements, etc. were not collected. Nevertheless, it provides a description of circumstances around their heroin addiction.

For the entire duration of the eight or nine years since they started heroin use, half (52%) of these 27 addicts had three to four separate periods of addiction (cycles). One in every four had two or less cycles. The rest had five or more cycles. The average number of cycles for the whole group is 3.5 (see Table 3.8).

Nearly half (44%) of these addicts had spent between 60 to 80% of their time (eight or nine years) on heroin addiction. One-third were addicted for more than 80% of the whole duration. On the average the addicts were addicted on heroin for 71% (or 6 years) of the whole duration (see Table 3.8).

The interruption of addiction indicates the extent these addicts sought treatment or were incarcerated. Generally, very little time was spent in treatment during the first eight or nine years of addiction. 55% of these addicts did not receive any treatment for their habit. 30% only sought treatment once, while a small proportion (15%) had undergone treatment two or more times. The duration of treatment was less than two months for a majority of those who were treated previously. On the average, less than one month was spent in treatment over the whole duration of the addiction (see Table 3.9).

Involvement with the legal authorities was substantial over the whole duration. One in every three addicts was incarcerated once, while more than half of all the addicts of this sample had two or more incarcerations. Only 11% did not experience any imprisonments. The addicts had on the average two incarcerations over the whole duration.

TABLE 3.8

DISTRIBUTION OF PERIODS
OF HEROIN ADDICTION (CYCLES)

a. i. Number of Cycles

Number of Cycles	Percentage of Addicts (n=27)
1 - 2	7 (26%)
3 - 4	14 (52%)
5 - 6	5 (18%)
More than 6	1 (4%)

ii. Average number of cycles = 3.5

b. i. Duration of heroin addiction (in percentage of total duration)

Less than 35%	1(4%)
35 - 59%	5(19%)
60 - 80%	12(44%)
More than 80%	9(33%)

ii. Average duration of heroin addiction = 6 years (or 71% of whole duration)

Only three of the 27 addicts had not been incarcerated. The rest is rather evenly distributed between shorter and longer periods of incarceration, the average time of incarceration being 15.7 months (related to the 27 cases).

Over the whole duration of the first eight or nine years of heroin use, there were occasions where the addicts have made attempts to abstain from use of the drug voluntarily. This usually followed the periods of imprisonments. Out of the 27 addicts studied, 85% reported that they had tried to "kick" the

TABLE 3.9

DISTRIBUTION OF INTERRUPTIONS
OF HEROIN USE

Treatment

a. i. No. of times in treatment

No. of times in treatment	Percentage of Addicts (n=27)
None	15 (55%)
1	8 (30%)
2 or more	4 (15%)

ii. Average number of times in treatment = 0.63

b. i. Duration in treatment (in months)

None	15 (55.5)
Less than 2	10 (37.1)
2 - 3.9	1 (3.7)
6 - 6.9	1 (3.7)

ii. Average duration of treatment = 0.6 month

TABLE 3.9 (cont.)

Incarceration

a. i. No. of times incarcerated

None	3 (11%)
Once	9 (33%)
Twice	8 (30%)
Thrice	3 (11%)
Four times	1 (4%)
More than 4 times	3 (11%)

ii. Average no. of periods of incarceration = 2

b. i. Duration of incarceration (in months)

None	3(11.1)
6 or less	6(22.2)
6.1 - 12	4(14.8)
12.1 - 24	8(29.6)
More than 24	6(22.2)

ii. Average duration of incarceration = 15.7 months

habit at least once. 44% had stopped use on two or more occasions. A small percentage (15%) had never abstained voluntarily. On the average, the addicts abstained 1.8 times over the whole duration (see Table 3.10)

Eventhough attempts were made to cease heroin use, it was revealed that the total duration of abstinence for 48% of the addicts was less than 12 months. Another 22% were abstinent in the community for between 12.1 to 24 months. 11% were abstinent in the community for more than 24 months. The average duration of abstinence was 11.4 months.

TABLE 3.10

DISTRIBUTION OF PERIODS
OF ABSTINENCE IN THE COMMUNITY

a. i. No. of periods of voluntary abstinence

None	4 (15%)
One	11 (41%)
Two	6 (22%)
Three	2 (7%)
Four or more	4 (15%)

ii. Average no. of periods = 1.8

b. i. Total duration of abstinence in community (in months)

None	4 (15%)
6 or less	8 (30%)
6.1 - 12	5 (18%)
12.1 - 24	6 (22%)
> 24	3 (11%)
Missing information	1 (4%)

ii. Average duration of abstinence = 11.4 months

CHAPTER 4: PATTERNS OF DRUG USE

This chapter presents data on drug use patterns of each of the type of respondents. Drugs ever used, drugs used in the last 30 days and in the last 24 hours were examined. A detailed discussion of the pattern of use of the most commonly reported drugs is presented. For each of these drugs, the following are delineated: age at first use, main reason for initial and for continuous use of the drug, the duration and the predominant route of use.

4.1 General Pattern of Drug Use

Drugs Ever Used

Tables 4.1a and 4.1b show for each drug the percentages of respondents who had ever used them in their lifetime, regardless of the frequency of use or purpose of use. Besides heroin, the most commonly reported drugs ever used by the addicts were alcohol, nicotine and cannabis. Three-quarters or more of the addicts had reported the use of each of these drugs.

Opium was more frequently reported than morphine. 45.4% of total respondents had tried opium as compared to only 10.8% of total respondents who had used morphine.

Among the benzodiazepines, flunitrazepam was the most popular. 58.6% of the 249 respondents had tried flunitrazepam. A smaller proportion had reported the use of other benzodiazepines, such as alprazolam, diazepam, lorazepam, triazolam, nitrazepam and nimitrazepam. 5.6% had used methaqualone.

The use of other drugs, such as cocaine, amphetamine, butobarbitone and other barbiturates, and L.S.D. was rarely reported.

There was no relevant difference in pattern of drugs ever used by the various types of respondents classified as location groups (see Table 4.1a). However, there were sizeable variations in the types of drugs ever tried by the various ethnic groups (see Table 4.1b). Therefore the tabulation of the further results of this investigation will be largely restricted to ethnicity while tables by the location groups are omitted. The ethnicity Table 4.1b shows that a larger proportion (94.3%) of Indians had used alcohol as compared to a lower percentage of Malays (84%) and Chinese (73.7%) (difference statistically significant at 0.01 level).

TABLE 4.1a

PERCENTAGE OF RESPONDENTS REPORTING THE EVER USE OF EACH DRUG BY LOCATION

Drug Type	Location			Total	
	Street	Treatment	Prison		
	(67)	(106)	(76)	(249)	(n)
Alcohol	83.6	85.8	78.9	83.1	(207)
Nicotine	98.5	100.0	100.0	99.6	(248)
Heroin	100.0	95.3	98.7	97.6	(243)
Opium	44.8	51.9	36.8	45.4	(113)
Morphine	7.5	12.3	11.8	10.8	(27)
Cannabis	71.6	75.5	79.0	75.5	(188)
Cocaine	-	0.9	-	0.4	(1)
Amphetamine	-	0.9	-	0.4	(1)
Butobarbitone	-	-	1.3	0.4	(1)
Barbiturates	1.5	-	-	0.4	(1)
Methaqualone	10.5	7.5	6.6	5.6	(20)
LSD	3.0	5.7	2.6	4.0	(10)
Diazepam	4.5	3.8	4.0	4.0	(10)
Flunitrazepam	67.2	60.4	48.7	58.6	(146)
Lorazepam	7.5	4.7	7.9	6.4	(16)
Nitrazepam	-	0.9	-	0.4	(1)
Nimitrazepam	-	6.6	1.3	3.2	(8)
Alprazolam	10.4	21.7	17.1	17.3	(43)
Triazolam	3.0	7.5	13.2	8.0	(20)
Dihydrocodeine	1.5	8.5	3.9	5.2	(13)
Other psycho-active substances	14.9	8.5	5.3	9.2	(23)

Multiple reporting allows percentage to exceed 100%.

TABLE 4.1b

PERCENTAGE OF RESPONDENTS REPORTING THE EVER USE OF EACH DRUG BY ETHNICITY

Drug Type	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(119)	(76)	(53)	(1)	(249)	(n)
Alcohol	84.0	73.7	94.3	100.0	83.1	(207)
Nicotine	100.0	98.7	100.0	100.0	99.6	(248)
Heroin	98.3	94.7	100.0	100.0	97.6	(243)
Opium	48.7	42.1	43.4	-	45.4	(113)
Morphine	12.6	7.9	11.3	-	10.8	(27)
Cannabis	90.8	42.1	88.7	100.0	75.5	(188)
Methaqualone	10.1	3.9	13.2	-	8.0	(20)
LSD	3.4	3.9	3.8	100.0	4.0	(10)
Diazepam	4.2	2.6	3.8	100.0	4.0	(10)
Flunitrazepam	67.2	47.3	54.7	100.0	58.6	(146)
Lorazepam	10.1	1.3	5.7	-	6.4	(16)
Nimitrazepam	6.7	-	-	-	3.2	(8)
Alprazolam	21.0	10.5	17.0	100.0	17.3	(43)
Triazolam	10.9	2.3	9.5	-	8.0	(20)
Dihydrocodeine	7.6	-	7.5	-	5.2	(13)
Other psycho-active substances	10.9	2.6	15.1	-	9.2	(23)

Multiple reporting allows percentage to exceed 100%.

The use of cannabis was more common among the Malays and Indians. About 90% of each of these two ethnic groups had used cannabis as compared to only 42.1% Chinese (difference statistically significant at 0.001 level). A larger proportion of Malays (67.2%) had used flunitrazepam as compared to 54.7% Indians and to 47.3% Chinese (difference statistically significant at 0.02 level). More Malays had tried other benzodiazepines, such as alprazolam, lorazepam and triazolam compared to the other races. There were no significant differences in the use of opium and benzodiazepines between the ethnic groups. The other drugs were rarely used by all three races.

Drugs Used in the Last 30 Days

For groups in the treatment centres and prison, this time lapse refers to 30 days prior to entering the institution. Except for the use of heroin and nicotine, the use of the other drugs had declined substantially in the last 30 days (see Table 4.2). This is an indication that many addicts discontinued the use of adjunctive drugs after initial experimentation. Almost all the respondents had maintained their cigarette smoking habit as well as their heroin habit in the last 30 days. Only one in every four respondents reported the use of alcohol. A similar proportion reported cannabis use. Flunitrazepam use was reported by 38.2% and opium by 13.3%. The use of other drugs was insignificant.

There was no relevant variation in the use of heroin and nicotine between the location groups of addicts.

Table 4.2 shows drug use in the last 30 days by ethnicity. Heroin and nicotine were the most common drug among all three ethnic groups. More Indians had consumed alcohol as compared to the Malays and Chinese. Cannabis and flunitrazepam were more popular among the Malays and Indians. The other drugs were seldom used by all three ethnic groups.

Drug Use in the Last 24 Hours

More than 95% of the addicts reported the use of nicotine and heroin in the last 24 hours (see Table 4.3). In contrast, the use of other drugs such as alcohol, cannabis and flunitrazepam had declined even further. Only 15.3% of the addicts had consumed alcohol, 16.1% had used cannabis and 26.5% had used flunitrazepam. Opium was used by a small proportion (6.8%) of respondents.

TABLE 4.2

PERCENTAGE OF RESPONDENTS REPORTING THE USE OF EACH DRUG IN THE LAST 30 DAYS BY ETHNICITY

Drug Type	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(119)	(76)	(53)	(1)	(249)	(n)
Alcohol	25.2	28.9	35.8	-	28.5	(71)
Nicotine	100.0	98.7	98.1	100.0	98.8	(246)
Heroin	95.8	92.1	98.1	-	94.8	(236)
Opium	11.8	14.5	15.1	-	13.3	(33)
Morphine	-	2.6	-	-	0.8	(2)
Cannabis	34.5	13.2	24.5	-	25.7	(64)
Methaqualone	1.7	-	3.8	-	1.6	(4)
LSD	-	-	1.9	-	0.4	(1)
Diazepam	0.8	1.3	1.9	-	1.2	(3)
Flunitrazepam	46.2	28.9	34.0	-	38.2	(95)
Lorazepam	1.7	-	0.6	-	1.2	(3)
Nimitrazepam	5.0	-	-	-	2.4	(6)
Alprazolam	8.4	5.3	7.5	-	7.2	(18)
Triazolam	4.2	1.3	5.7	-	3.6	(9)
Dihydrocodeine	4.2	-	5.7	-	3.2	(8)
Other psycho-active substances	1.7	1.3	7.5	-	2.8	(7)

Multiple reporting allows percentage to exceed 100%.

TABLE 4.3

PERCENTAGE OF RESPONDENTS REPORTING THE USE OF EACH DRUG IN THE LAST 24 HOURS BY ETHNICITY

Drug Type	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(119)	(76)	(53)	(1)	(249)	(n)
Alcohol	16.0	15.8	13.2	-	15.3	(38)
Nicotine	98.3	94.7	96 2	100.0	96.8	(241)
Heroin	91.6	89.5	98.1	-	91.9	(229)
Opium	5.9	10.5	3.8	-	6.8	(17)
Cannabis	25.2	5.3	11.3	-	16.1	(40)
LSD	-	-	1.9	-	0.4	(1)
Flunitrazepam	30.3	21.1	26.4	-	26.5	(66)
Lorazepam	0.8	-	-	-	0.4	(1)
Nimitrazepam	1.7	-	-	-	0.8	(2)
Alprazolam	3.4	3.9	3.8	-	3.6	(9)
Triazolam	3.4	-	3.8	-	2.4	(6)
Other psycho-active substances	0.8	-	1.9	-	0.8	(2)

Multiple reporting allows percentage to exceed 100%.

A similar pattern of drug use was observed for the location groups and the ethnic groups. All the three races were addicted to heroin. Cannabis was more popular among the Malays than the Chinese and Indian addicts (difference statistically significant at 0.001 level). A slightly larger percentage of Malays were using flunitrazepam than Chinese and Indians (difference statistically significant at 0.05 level). There were no significant differences in the use of other drugs between the ethnic groups.

4.2 Pattern of Multiple Drug Use

One of the major objectives of this study was to determine the extent and pattern of adjunctive drug use among heroin addicts. The extent and pattern of multiple drug use will be the focus of this section.

Multiple Drug Use in the Last 30 Days

The distribution of the pattern of multiple drugs consumed by the addicts in the last month is presented in Table 4.4. If nicotine is included, then all the addicts have used at least 2 drugs, i.e. heroin and nicotine. Excluding nicotine use, we have identified 10 different patterns.

69.5% of the addicts had reported the use of heroin and one or more other drugs. This indicates that about 70% of the addicts were multiple drug users in the last month.

Out of the 10 patterns identified, a few emerged as more common. Nearly one-third (30.5%) of the addicts were single drug users, i.e. users of opiates alone, and this was the predominant pattern. Opiates and benzodiazepines were used by a substantial proportion (22.1%) of the addicts. Another 12.1% had used opiates and alcohol in the last month.

Another small proportion (7.6%) had used opiates and cannabis, while another 6% had also used alcohol together with opiates and cannabis. The other patterns of drug use were uncommon. However, it was observed that a small proportion (4.5%) of the addicts had actually used a mixture of drugs (more than four) in the last month.

If the opiate users for the last month or 30 days are cumulated they amount to 234 cases (94.0%). The same cumulation for the most commonly used adjunctive drugs, the benzodiazepines, results in 96 cases (38.6%) of the total sample.

TABLE 4.4

PATTERN OF MULTIPLE DRUG USE IN THE LAST MONTH OR 30 DAYS

Drug Use Pattern*	No. of Cases (n=249)
1. Opiates only	76 (30.5%)
2. Opiates and benzodiazepines	55 (22.1%)
3. Opiates and alcohol	30 (12.1%)
4. Opiates and alcohol and benzodiazepines	27 (10.8%)
5. Opiates and cannabis	19 (7.6%)
6. Opiates and alcohol and cannabis	15 (6.0%)
7. Opiates and alcohol and cannabis and benzodiazepines	12 (4.8%)
8. Benzodiazepines only	2 (0.8%)
9. Cannabis only	2 (0.8%)
10. Others (mixture of many drugs)	11 (4.5%)
	(100.0)

* Nicotine is disregarded (see text)

Pattern of Multiple Drug Use in the Last 24 Hours

Table 4.5 presents the pattern of multiple drug use in the last 24 hours. Half of the addicts had used opiates only. The extent of multiple drug use was substantial. Half of the total addicts had reported the use of more than one drug (excluding nicotine). The pattern of multiple drug use was diverse: use of opiates and benzodiazepines, opiates and alcohol, and opiates and cannabis. A small percentage of the addicts had used a variety of multiple drugs in the last 24 hours.

1.6% of the addicts had used benzodiazepines only in the last 24 hours. Opiate use cumulated for the last 24 hours amounts to 230 cases (92.4%) while the same cumulation for benzodiazepine use amount to 70 cases (28.1%). The opiate use shows practically no change between the last 30 days and last 24 hours, but there is a marked drop in the benzodiazepine use. This can only be explained by intermittent use of benzodiazepines.

4.3 Pattern of Use of Each Major Drug

This section examines the nature of the primary drug of abuse, i.e. heroin, and the more commonly reported adjunctive drugs, morphine, opium, cannabis, alcohol, nicotine and benzodiazepines. For each of these drugs the following parameters are examined: the age at first use, the main reason for initial and continuous use, the duration of use, and the frequency of use in the last month.

4.3.1 Heroin Use

Age at First Use

Almost 40% of the respondents had started the use of heroin for the first time when they were in their teens (see Table 4.6). Another 40% had started use between the age of 20 and 24 years. The rest (23.9%) had used heroin for the first time after age 24. There was no significant variation in the age at first use of heroin between the three location groups. The average age for the first heroin use among all respondents was 21.7 years, the median age being just below 20 years.

A comparison of the age at first heroin use by ethnicity was carried out (see Table 4.6). 43.1% of the Chinese had started the use of heroin when they were teenagers as compared to 36.8% of Malays and 28.3% of Indians. The Indian addicts generally had begun use of heroin at an older age compared to the other two groups.

TABLE 4.5

PATTERN OF MULTIPLE DRUG USE IN THE LAST 24 HOURS

Drug Use Pattern*	No. of Cases (n=249)
1. Opiates only	119 (47.8%)
2. Heroin and benzodiazepines	55 (22.1%)
3. Heroin and alcohol (3 cases with opium also)	22 (8.8%)
4. Heroin and cannabis	19 (7.6%)
5. Heroin and alcohol and cannabis (3 cases with benzodiazepines included)	7 (2.8%)
6. Heroin and cannabis and benzodiazepines	4 (1.6%)
7. Opiates and alcohol and benzodiazepines	4 (1.6%)
8. Benzodiazepines only	4 (1.6%)
9. Others (mixture of many drugs)	12 (4.8%)
10. Nicotine only	3 (1.2%)

* Nicotine is disregarded in categories 1 - 9.

TABLE 4.6

DISTRIBUTION OF RESPONDENTS BY AGE AT FIRST HEROIN USE AND BY ETHNICITY

Age at first use (in years)	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(117)	(72)	(53)	(1)	(243)	(n)
Less than 15	3.4	2.8	1.9	100.0	3.3	(8)
15 - 19	33.4	40.3	26.4	-	33.7	(82)
20 - 24	39.3	38.9	39.6	-	39.1	(95)
25 - 29	18.8	11.1	18.9	-	16.5	(40)
30 and above	5.1	6.9	13.2	-	7.4	(18)
All Categories	100.0	100.0	100.0	100.0	100.0	

One-third of Indians had started heroin use after 24 years of age as compared to 23.9% of Malay and 18% of Chinese addicts. These differences, however, were not statistically significant.

Main Reason for Initial Use

58.9% of the addicts had tried heroin for the first time for the main reason of curiosity and to experience the drug (see Table 4.7). 16.2% were influenced by their friends. A small proportion of addicts were initiated into heroin use because of boredom and for fun and stimulation. The other reasons were uncommon.

There was no significant variation in the main reason for initial use of heroin between the three ethnic groups. A majority of each ethnic group had started use of heroin out of curiosity and to experience the drug. Other reasons were reported only in small proportions of addicts.

Main Reason for Continuous Use

The great majority reported the reason for the continuous use of heroin to be fun and stimulation, and addiction to the drug (see Table 4.8). The other reasons were uncommon. There was no variation in reasons between the three location groups nor between the three ethnic groups.

Duration of Use

Table 4.9 shows that an overwhelming majority (82.2%) of the respondents had more than 3 years of heroin addiction. 29.8% had between 3 to 6 years of use, 26.4% had between 6 and 10 years of use and 26.0% above 10 years. A similar pattern of distribution of duration of heroin use was observed in the three location and ethnic groups.

Other Characteristics of Use

Chasing the dragon (50.4%) and intravenous use (43.8%) were the two common routes of heroin use. There was no difference between the location groups and the ethnic groups.

A majority (69%) of the respondents had used heroin two to three times daily in the last 30 days. A small proportion (16%) had used heroin more than three times daily. Thus 85% had used it twice or more often daily.

TABLE 4.7

DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR INITIAL HEROIN USE AND BY ETHNICITY

Main reason for initial use	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(116)	(72)	(52)	(1)	(241)*	(n)
To forget his problems	0.9	1.4	3.9	-	1.7	(4)
To experience drugs/curiosity	59.5	61.1	53.9	100.0	58.9	(142)
Influenced by friends	12.9	18.1	21.2	-	16.2	(39)
Due to health problem	-	-	1.9	-	0.4	(1)
For fun and stimulation/ pleasure	6.9	8.3	11.5	-	8.3	(20)
Out of boredom	9.5	6.9	1.9	-	7.1	(17)
Addiction to other drugs	2.6	-	-	-	1.2	(3)
Easy availability	0.8	-	-	-	0.4	(1)
To substitute cannabis	1.7	-	3.9	-	1.6	(4)
Others	5.2	4.2	1.8	-	4.2	(10)
All Categories	100.0	100.0	100.0	100.0	100.0	

* Missing information on 2 cases.

TABLE 4.8

DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR CONTINUOUS USE OF HEROIN AND BY ETHNICITY

Main reason for continuous use	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(116)	(72)	(52)	(1)	(241)*	(n)
To forget his problems	3.4	1.4	1.9	-	2.5	(6)
To experience drugs/curiosity	1.7	-	1.9	-	1.2	(3)
Influenced by friends	6.9	8.3	7.7	-	7.5	(18)
Due to health problem	0.9	1.4	-	-	0.8	(2)
Thought he could control use	-	1.4	-	-	0.4	(1)
For fun and stimulation/ pleasure	48.3	43.0	38.5	-	44.4	(107)
Out of boredom	10.3	5.6	1.9	-	7.1	(17)
Addiction to other drugs	23.3	33.3	44.3	-	30.7	(74)
Easy availability	0.9	1.4	1.9	-	1.2	(3)
Others	4.3	4.2	1.9	100.0	4.2	(10)
All Categories	100.0	100.0	100.0	100.0	100.0	

* Missing information on 2 cases.

TABLE 4.9

DISTRIBUTION OF RESPONDENTS BY DURATION OF HEROIN USE AND BY ETHNICITY

Duration of use (in years)	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(117)	(72)	(52)	(1)	(242)*	(n)
1 and less	3.4	-	3.9	-	2.5	(6)
1.1 - 2	7.7	5.6	19.2	-	9.5	(23)
2.1 - 3	6.0	6.9	3.9	-	5.8	(14)
3.1 - 4	11.1	9.7	5.8	-	9.5	(23)
4.1 - 6	18.8	25.0	17.3	-	20.3	(49)
6.1 - 8	18.8	9.7	17.3	-	15.7	(38)
8.1 - 10	12.0	8.8	11.5	-	10.7	(27)
More than 10	22.2	34.3	21.1	100.0	25.6	(62)
All Categories	100.0	100.0	100.0	100.0	100.0	

* Missing information on 1 case.

There was no relevant variation in the frequency of heroin use between the location and the ethnic groups. 95.4% of the sample of 242 cases on which this information was available had used heroin in the last 24 hours.

Dosages of heroin consumed have not been specifically asked in this study. Instead frequency of use was collected. From earlier findings (Navaratnam, et al. 1983, Foong and Navaratnam, 1987, a and b) an average use of 75 mg of pure heroin/day can be assumed. This would be equivalent to about M$10 - 15 or even more per day, a straw containing usually about 50 mg of pure heroin and being sold at a price of M$7 - 10 according to availability. The price of street heroin has varied between the range of M$3.50 and M$10 per 50 mg of pure heroin over the last 5 years. This variation in price is influenced by the level of law enforcement implementation as well as the availability of the drug which is dependent on producing nations of the Golden Triangle and Golden Crescent.

4.3.2 Opium Use

45.4% (or 113) of total respondents (n=249) had tried opium (see Table 4.10). 24.8% of these 113 cases had used the drug for the first time when they were teenagers. 42.5% had started use in their early twenties, and the rest started when they were above 24 years. The average age at first use of opium was 22.8 years. The distributions of age at first use of opium was similar in the three location groups.

There was no significant variation in the age at first use of opium between the three ethnic groups.

Main Reason for Initial Use

The main reasons reported for experimenting with opium were diverse (see Table 4.11). 15.9% of total respondents had tried opium for curiosity, 18.6% had used it for fun and stimulation. A sizeable proportion (24.8%) had used opium in an attempt to quit or "kick" their heroin habit. A smaller proportion (17.7%) used opium as a substitute for heroin during a heroin shortage.

There were no significant differences in reasons reported for the initial use of opium between the ethnic and the location groups.

TABLE 4.10

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY AGE AT FIRST OPIUM USE AND BY ETHNICITY

Age at first use (in years)	Ethnicity			Total	
	Malay	Chinese	Indian		
	(58)	(32)	(23)	(113)	(n)
Less than 15	6.9	-	-	3.6	(4)
15 - 19	24.2	12.5	26.1	21.2	(24)
20 - 24	44.8	46.9	30.4	42.5	(48)
25 - 29	13.8	28.1	30.4	21.2	(24)
30 and above	10.3	12.5	13.1	11.5	(13)
All Categories	100.0	100.0	100.0	100.0	

TABLE 4.11

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR INITIAL USE OF OPIUM AND BY ETHNICITY

Main reason for initial use	Ethnicity			Total	
	Malay	Chinese	Indian		
	(58)	(32)	(23)	(113)	(n)
To forget his problems	-	3.1	-	0.9	(1)
To experience drugs/curiosity	17.2	15.7	13.0	15.9	(18)
Influenced by friends	6.9	3.1	13.0	7.1	(8)
Due to health problem	1.7	3.1	-	1.8	(2)
Thought he could control use	3.5	-	-	1.8	(2)
For fun and stimulation/ pleasure	22.4	15.7	13.0	18.6	(21)
Out of boredom	-	3.1	8.7	2.6	(3)
For the psycho-logical and physical comfort	1.7	-	-	0.9	(1)
In attempt to quit heroin	22.4	28.1	26.1	24.8	(28)
To induce his appetite	-	3.1	-	0.8	(1)
To substitute for heroin	19.0	15.6	17.4	17.7	(20)
To suppress withdrawal symptoms	5.2	9.4	8.8	7.1	(8)
All Categories	100.0	100.0	100.0	100.0	

Main Reason for Continuous Use

The reasons stimulation/pleasure and addiction led in one half of the cases to continuous use (see Table 4.12). One-tenth of the respondents used it to substitute for heroin. Other reasons were given with a lower frequency. Again there were no relevant differences between the location and the ethnic groups.

Duration of Opium Use

The total duration of opium use was basically short. 48.5% of total respondents had used opium for one year or less (see Table 4.13). 20.8% had used opium for between 1.1 and 2 years. Small percentages were distributed across the other categories. There was no relevant variation in distribution of total duration of opium use between the ethnic and the location groups, nor between their subgroups. On the average the addicts were addicted to opium for 2.7 years.

Other Characteristics of Use

62.5% of the respondents consumed opium orally, while another 30.4% smoked the drug. There was no relevant variation between the location and the ethnic groups nor within the two groups (see Table 4.14).

Only a small percentage (29.5%) of those who had tried opium had used it during the last month (see Table 4.15). The frequency of use varied from less than once weekly to as much as 2 to 3 times daily. The frequency of use did not differ between the location and ethnic groups. A great majority did not use the drug in the last month.

4.3.3 Morphine Use

Age at First Use

Only 27 cases (10.8% of the total respondents) had ever tried morphine (see Table 4.16). Half of this group first used morphine while in their early twenties. A sizeable proportion were teenagers when they first used morphine. One-fourth had used morphine after 24 years of age. The average age for first use was 22.3 years. There was no relevant difference in the age of first use between the different groups of addicts.

TABLE 4.12

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR CONTINUOUS USE OF OPIUM AND BY ETHNICITY

Main reason for continuous use	Ethnicity			Total	
	Malay	Chinese	Indian		
	(57)	(31)	(19)	(107)	(n)
No information	-	-	5.2	0.9	(1)
To forget his problems	-	3.2	-	0.9	(1)
To experience drugs/curiosity	7.0	3.2	5.2	5.6	(6)
Influenced by friends	3.5	-	10.5	3.7	(4)
Due to health problem	-	-	5.3	0.9	(1)
Thought he could control use	1.8	3.2	-	1.9	(2)
For fun and stimulation/ pleasure	22.8	38.7	5.3	24.3	(26)
Out of boredom	-	-	15.8	2.8	(3)
For the psycho-logical and physical comfort	3.5	-	-	1.9	(2)
Became addicted	24.6	22.6	21.1	23.4	(25)
To substitute for heroin	6.9	12.9	10.5	9.4	(10)
To suppress withdrawal symptoms	14.0	-	-	7.5	(8)
Others	15.9	16.2	21.1	16.8	(18)
All Categories	100.0	100.0	100.0	100.0	

TABLE 4.13

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY DURATION OF OPIUM USE AND BY ETHNICITY

Duration of use (in years)	Ethnicity			Total	
	Malay	Chinese	Indian		
	(54)	(27)	(20)	(101)*	(n)
1 and less	51.9	44.5	45.0	48.5	(49)
1.1 - 2	22.2	18.5	20.0	20.8	(21)
2.1 - 3	5.6	7.4	-	4.9	(5)
3.1 - 4	-	-	10.0	2.0	(2)
4.1 - 6	11.1	7.4	10.0	9.9	(10)
6.1 - 8	3.7	-	10.0	4.0	(4)
8.1 - 10	-	7.4	-	2.0	(2)
More than 10	5.5	14.8	5.0	7.9	(8)
All Categories	100.0	100.0	100.0	100.0	

* Missing information on 12 cases.

TABLE 4.14

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY PREDOMINANT ROUTE OF OPIUM USE AND BY ETHNICITY

Predominant route of use	Ethnicity			Total	
	Malay	Chinese	Indian		
	(57)	(32)	(23)	(112)*	(n)
Eat/drink	59.6	62.5	69.6	62.5	(70)
Smoke	28.1	34.4	30.4	30.4	(34)
Inject	12.3	3.1	-	7.1	(8)
All Categories	100.0	100.0	100.0	100.0	

* Missing information on 1 case.

TABLE 4.15

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY FREQUENCY OF OPIUM USE IN THE LAST MONTH AND BY ETHNICITY

Frequency of use in the last month	Ethnicity			Total	
	Malay	Chinese	Indian		
	(57)	(32)	(23)	(112)	(n)
No use	75.4	65.6	65.2	70.5	(79)
Less than once a week	15.7	18.7	8.7	15.2	(17)
Once a week	1.8	-	4.4	1.8	(2)
More than once a week	1.8	-	8.7	2.7	(3)
Once daily	3.5	9.4	-	4.5	(5)
2 - 3 times daily	1.8	6.3	13.0	5.3	(6)
All Categories	100.0	100.0	100.0	100.0	

* Missing information on 1 case.

TABLE 4.16

DISTRIBUTION OF RESPONDENTS BY AGE AT FIRST MORPHINE USE AND BY ETHNICITY

Age at first use (in years)	Ethnicity			Total	
	Malay	Chinese	Indian		
	(15)	(6)	(6)	(27)	(n)
15 - 19	33.3	16.7	-	22.2	(6)
20 - 24	33.3	66.7	83.3	51.9	(14)
25 - 29	26.7	16.6	16.7	22.2	(6)
30 and above	6.7	-	-	3.7	(1)
All Categories	100.0	100.0	100.0	100.0	

Main Reason for Initial Use

Almost one half started use of morphine for the sake of curiosity (see Table 4.17). Another fifth had begun to use morphine for fun and stimulation. 4 cases had started to use morphine to substitute for heroin when there was a shortage of heroin.

The numbers are too small to substantiate differences between groups.

Main Reason for Continuous Use

Information was available in 22 cases (see Table 4.18). Half of the respondents had continued the use of morphine for the fun and stimulation acquired from it. 3 cases had used the drug as a substitute for heroin. Other reasons were rarely reported (forgetting problems, addiction, suppressing heroin withdrawal symptoms and others). Again the numbers are too small to substantiate differences between groups.

Duration of Use

The majority of the 22 cases, on which information was available, had used morphine for two or less years (see Table 4.19). Again, numbers are too small for further analysis.

Other Characteristics of Use

Injecting was the predominant route for administering morphine (25 of the 27 cases). 25 cases had not used morphine in the last month; the 2 users had used it less than once weekly.

4.3.4 Nicotine Use

The number is here 248 because one of the total addict population had not smoked.

90.7% of the respondents had started cigarette smoking when they were teenagers.

Curiosity and peer influence were the two common reasons reported for initial use of nicotine.

An overwhelming majority of the addicts had continued cigarette smoking because of dependence on nicotine.

TABLE 4.17

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR INITIAL MORPHINE USE AND BY ETHNICITY

Main reason for initial use	Ethnicity			Total	
	Malay	Chinese	Indian		
	(15)	(6)	(6)	(27)	(n)
To experience drugs/curiosity	46.7	33.3	50.0	44.5	(12)
Influenced by friends	-	-	33.3	7.4	(2)
For fun and stimulation/ pleasure	20.0	33.4	-	18.5	(5)
Attempt to quit heroin	6.7	-	16.7	7.4	(2)
To substitute for heroin	13.3	33.3	-	14.8	(4)
Others	13.3	-	-	7.4	(2)
All Categories	100.0	100.0	100.0	100.0	

TABLE 4.18

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR CONTINUOUS USE OF MORPHINE AND BY ETHNICITY

Main reason for continuous use	Ethnicity			Total	
	Malay	Chinese	Indian		
	(13)	(5)	(4)	(22)	(n)
To forget his problems	7.7	-	25.0	9.1	(2)
For fun and stimulation/ pleasure	61.5	40.0	25.0	50.0	(11)
Became addicted	7.7	20.0	-	9.1	(2)
To substitute for heroin	7.7	20.0	25.0	13.6	(3)
Suppressing heroin withdrawal symptoms	7.7	-	-	4.6	(1)
Others	7.7	20.0	25.0	13.6	(3)
All Categories	100.0	100.0	100.0	100.0	

TABLE 4.19

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY DURATION OF MORPHINE USE AND BY ETHNICITY

Duration of use (in years)	Ethnicity			Total	
	Malay	Chinese	Indian		
	(13)	(5)	(4)	(22)*	(n)
1 and less	38.5	20.0	50.0	36.4	(8)
1.1 - 2	46.2	40.0	25.0	40.9	(9)
2.1 - 3	-	-	25.0	4.6	(1)
3.1 - 4	-	-	-	-	
4.1 - 6	-	20.0	-	4.6	(1)
6.1 - 8	7.7	-	-	4.5	(1)
8.1 - 10	-	20.0	-	4.5	(1)
More than 10	7.6	-	-	4.5	(1)
All Categories	100.0	100.0	100.0	100.0	

* Missing information on 5 cases.

A majority (65.9%) of respondents have been smoking for more than 10 years. On the average the addicts were cigarette smokers for a duration of 13.9 years. Most of the respondents smoked more than four times daily. A similar pattern of cigarette smoking was observed among the location and ethnic groups and subgroups.

4.3.5 Alcohol Use

Age at First Use

A majority (65.7%) of the addicts consumed alcohol for the first time while in their teens. A sizeable proportion (27.5%) first used alcohol when they were in their early twenties. Alcohol was probably the next drug that most respondents experimented with after nicotine.

Main Reason for Initial Use

Peer influence as well as fun and stimulation were frequently (75.1%) reported for initial use of alcohol. Other reasons were rarely reported. The above two reasons predominated among respondents from the street and treatment groups. However, among addicts in the prison peer influence was the only important reason. 53.5% of the Malay addicts reported influence by friends as reason to begin alcohol use as compared to 35.7% Chinese and 28.6% Indians. These ethnic differences, if they are real, are difficult to interpret and of questionable importance for the heroin problem.

Main Reason for Continuous Use

Sizeable proportions of respondents from each group continued alcohol consumption because of the influence of friends and for fun and stimulation.

The duration of alcohol consumption varied. 33.7% had 2 years or less of alcohol intake, 18.6% had between 2.1 and 4 years of alcohol consumption.

Alcohol consumption was irregular. Two-thirds of the addicts had not taken alcohol in the last 30 days, one-fifth had taken it less than once weekly. Only 7.4% had consumed alcohol on a daily basis. There was no difference in pattern of alcohol consumption between location and ethnic groups.

4.3.6 Cannabis Use

Age at First Use

Besides nicotine, cannabis was the other drug experimented with at a young age (see Table 4.20). 75.6% of the respondents had tried cannabis for the first time while they were in their teens. 15.4% had tried it in their early twenties. The average age for the initiation of cannabis use was 17.8 years.

A comparison of the age at first use of cannabis between the Malays, Chinese and Indians revealed that on the average the Malays had first tried cannabis at a younger age (average 16.9 years) as compared to the other two races (difference statistically significant at 0.05 level). Generally, the Malays were more likely to try most drugs at an earlier age compared to the Chinese and Indians. There were no relevant differences among the location groups.

Main Reason for Initial Use

Curiosity and peer influence were the most frequent reasons reported for the first use of cannabis. 39.3% of total respondents had reported that they were induced by curiosity and the urge to experience the drug. Another sizeable proportion (41.9%) were influenced by their peers to experiment with cannabis. A small percentage (14%) had tried cannabis for the fun and stimulation derived from it. There was no relevant variation in main reasons reported for cannabis use by the different groups of addicts.

The proportion of the cases that had tried cannabis for the first time because of curiosity did not vary in the three ethnic groups. However, the influence of friends was given as a reason more often by Malays (50.5%) and Indians (41.3%) than by Chinese (15.6%) (difference statistically significant at 0.01 level). In contrast a larger proportion (31.3%) of Chinese addicts had tried cannabis for the fun and stimulation obtained from the drug than the other two ethnic groups (Malays 7.5%, Indians 17.4%) (difference statistically significant at 0.01 level).

Main Reason for Continuous Use

Half (52.3%) of the addicts used cannabis continuously mainly for the fun and stimulation. Another 29.5% had continued the use of cannabis because of the influence of friends. The other reasons were less frequently reported.

TABLE 4.20

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY AGE AT FIRST CANNABIS USE AND BY ETHNICITY

Age at first use (in years)	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(108)	(32)	(47)	(1)	(188)	(n)
Less than 15	27.8	12.5	10.7	100.0	21.3	(40)
15 - 19	52.8	50.0	61.7	-	54.3	(102)
20 - 24	12.9	21.9	17.0	-	15.4	(29)
25 - 29	6.5	9.4	8.5	-	7.4	(14)
30 and above	-	6.2	2.1	-	1.6	(3)
All Categories	100.0	100.0	100.0	100.0	100.0	
Average age (in years)	16.9	19.9	18.5	-	17.8	

The main reasons for continued use of cannabis did not vary between the location and ethnic groups.

Duration of Use

One in three addicts had less than 2.1 years of cannabis use. Another 15.4% had between 2 to 4 years of use, while another 31.6% had between 4 and 8 years of use. The rest had more than 8 years of use. The average number of years of cannabis use was 6 years among these addicts. There was no major variation in distribution of duration of use between the different groups of respondents.

Other Characteristics of Use

Cannabis was smoked in 96.3% of all cannabis users. It was rarely eaten or sniffed. Cannabis was used irregularly by a majority of the respondents. 65.6% did not use cannabis at all in the last 30 days (see Table 4.21). 10.7% had used the drug daily (last 3 groups of Table 4.21) while another 18.3% had used it less than once a week. The patterns in frequency of use did not vary between the groups.

4.3.7 Benzodiazepine Use

Flunitrazepam was the most common benzodiazepine used by the opioid addicts. Therefore, it is given special consideration among the benzodiazepines. There were another 6 benzodiazepines, use of which has been reported by the addicts. Flunitrazepam has been named 146 times, the other 6 benzodiazepines together 98 times. These less often used benzodiazepines will be considered together with flunitrazepam. In interpreting these figures it has to be kept in mind that naming of more than one benzodiazepine by the addict has been possible.

Age at First Use

Information was obtained on age at first use of benzodiazepines in 152 cases. Results are reported in Table 4.22 and Graph 4.1. For comparison age at first use of opioids has been added. The peak of first benzodiazepine use is between 22 and 27 years of age with a maximum at the age of 26 years. It starts as early as opioid use; 1 addict had reported benzodiazepine use at the age of 9, before first use of opioids. However, opioids start on the whole much earlier than the benzodiazepines. Onset of opioid use has its peak between 17 and 23 years of age,

TABLE 4.21

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY FREQUENCY OF CANNABIS USE AND BY ETHNICITY

Frequency of use in the last month	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(108)	(32)	(45)	(1)	(186)*	(n)
No use	62.0	68.8	71.1	100.0	65.6	(124)
Less than once a week	20.4	28.1	6.6	-	18.3	(34)
Once a week	3.7	3.1	4.5	-	3.8	(7)
More than once a week	0.9	-	4.5	-	1.6	(3)
Once daily	3.7	-	8.9	-	4.3	(8)
2 - 3 times daily	7.4	-	2.2	-	4.8	(9)
More than 3 time daily	1.9	-	2.2	-	1.6	(3)
All Categories	100.0	100.0	100.0	100.0	100.0	

* Missing information on 2 cases.

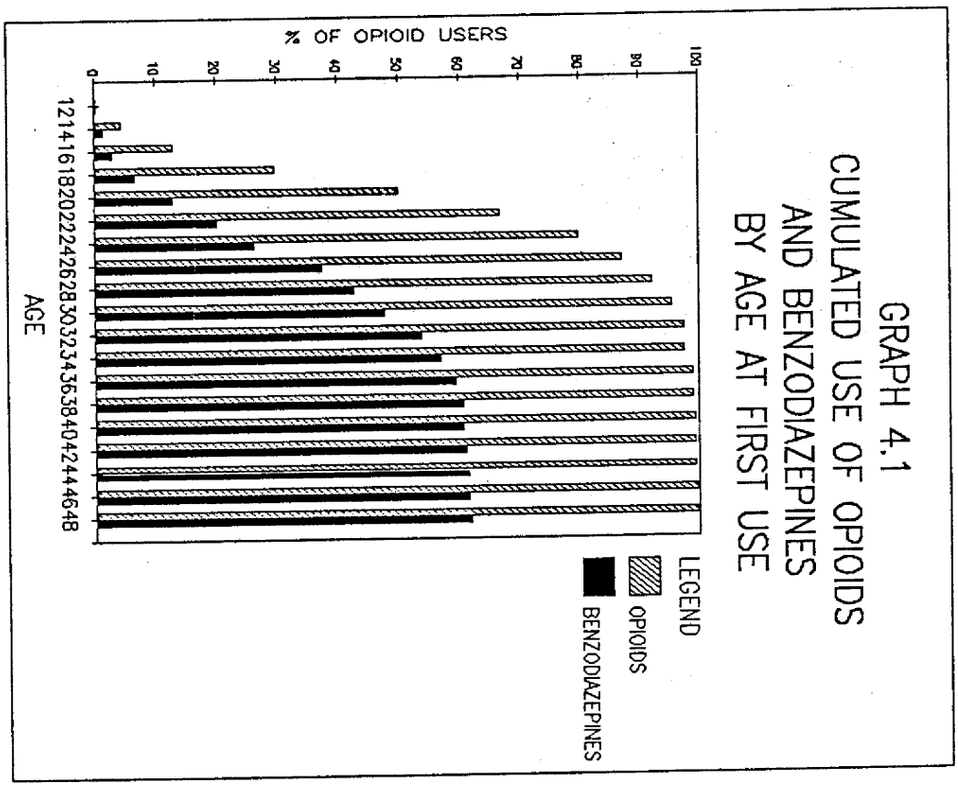
TABLE 4.22

CUMULATED USE OF OPIOIDS AND BENZODIAZEPINES BY AGE AT FIRST USE

Age at first use	No. of users		Percentage of users		Cumulative % of all opioid users	
	Opioids	Benzodiazepines	Opioids	Benzodiazepines	Opioids	Benzodiazepines
9	0	1	-	0.7	-	0.4
12	1	-	0.4	-	0.4	0.4
13	-	1	-	0.7	-	0.8
14	10	2	4.1	1.3	4.5	1.6
15	11	2	4.5	1.3	9.0	2.4
16	10	2	4.1	1.3	13.1	3.2
17	24	4	9.8	2.6	22.9	4.9
18	17	5	6.9	3.3	29.8	6.9
19	23	5	9.4	3.3	39.2	9.0
20	27	10	11.0	6.6	50.2	13.1
21	17	8	6.9	5.3	57.1	16.3
22	24	10	9.8	6.6	66.9	20.4
23	20	8	8.2	5.3	75.1	23.7
24	12	7	4.9	4.6	80.0	26.5
25	9	13	3.7	8.6	83.7	31.8
26	9	14	3.7	9.2	87.3	37.6
27	9	8	3.7	5.9	91.0	41.2
28	3	4	1.2	2.6	92.2	42.9

TABLE 4.22 (Cont.)

Age at first use	No. of users		Percentage of users		Cumulative % of all opioid users	
	Opioids	Benzodiazepines	Opioids	Benzodiazepines	Opioids	Benzodiazepines
29	4	9	1.6	5.9	93.9	46.5
30	4	3	1.6	2.0	95.5	47.8
31	3	6	1.2	3.9	96.7	50.2
32	2	9	0.8	5.9	97.6	53.9
33	-	5	-	3.3	97.6	55.9
34	-	3	-	2.0	97.6	57.1
35	3	4	1.2	2.6	98.8	58.8
36	1	2	0.4	1.3	99.2	59.6
37	-	2	-	1.3	99.2	60.4
38	-	1	-	0.7	99.2	60.8
40	1	-	0.4	-	99.6	60.8
42	-	1	-	0.7	99.6	61.2
44	-	1	-	0.7	99.6	61.6
46	1	-	0.4	-	100.0	61.6
48	-	1	-	0.7	100.0	62.0
Total	245	152	100%	100%		



with a maximum at 20 years. Benzodiazepines come into use much later than opioids. This is reflected by the tabulation of cumulative percentage of opioid use and benzodiazepine use. Between the age of 15 and 20, the benzodiazepine percentage is roughly 5 times smaller than the percentage for opioids. It then slowly increases and reaches half of the opioid percentage at the age of 31. At the age of 48, 62% of all opioid users have used benzodiazepines.

The median age of first benzodiazepine use is 25 years, while the median age of onset of opioid use lies just below 20 years, as can be seen from the cumulative table.

The age of first opioid use and first benzodiazepine use, and the time lag between the first use of these two drugs of each individual case are presented in Annex 1. The time lapse between the first use of benzodiazepines compared with first use of opioids is presented in Table 4.23.

TABLE 4.23

FIRST USE OF BENZODIAZEPINES COMPARED WITH FIRST USE OF OPIOIDS

Time lapse	No. of cases (n=149)
Before opioids	11 (7.4%)
Together with opioids	12 (8.1%)
1 - 2 years after opioids	23 (15.4%)
3 - 5 years after opioids	40 (26.8%)
> 5 years after opioids	63 (42.3%)

It is obvious from this table that benzodiazepine first use begins after the onset of opioid use (in 92.6% of the cases). In a large number (42.3%) of the cases its use began after 5 years of first opioid use.

Individual Benzodiazepines

Age at First Use

The average age for initiating flunitrazepam use was 25.9 years (see Table 4.24). This is in rough consonance with the median age of onset of overall benzodiazepine use of 25 years. As compared with the other benzodiazepines alprazolam may have a slightly earlier peak of age at onset (in the early twenties when cumulated). Lorazepam behaves similar to alprazolam while triazolam shows a similar pattern to flunitrazepam. They come on slightly more slowly than alprazolam and lorazepam. The other mentioned benzodiazepines have too small numbers to be considered in detail.

Main Reason for Initial Use

To enhance the high or euphoric feeling from opioid was the most prominent reason of all the benzodiazepines with numbers over 10 (see Table 4.25). It was around 50%, alprazolam and triazolam being slightly higher and lorazepam being slightly lower than flunitrazepam. Diazepam was not used for this purpose. Curiosity was the second reason in frequency for first use of benzodiazepines, flunitrazepam standing out in frequency in this category. All other reasons were rare. In flunitrazepam none of these other reasons exceeded 10% in frequency. If all the reasons that can be qualified as therapeutic (from addiction to other drugs, to suppressing withdrawal symptoms, sleeplessness included) are added together they do not exceed 20%. For flunitrazepam they amounted to 15%. The outstanding 33% of diazepam use for therapeutic purposes has to be seen in the light of the total number of 9 diazepam users.

Peer pressure was negligible. The category "for fun and stimulation" has been dropped because none of the heroin addicts had reported benzodiazepine use for this purpose.

Main Reason for Continuous Use

The most common reason for continuous use was to enhance the feeling of high from opioids (over 60% of the users). The reason "for fun and stimulation" was not reported by any of the addicts.

Duration of Use

The highest percentage of all the seven benzodiazepines is in the category of less than one year

TABLE 4.24

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY AGE AT FIRST USE OF BENZODIAZEPINES

Age at first use (in years)	Flunitrazepam	Alprazolam	Triazolam	Lorazepam	Diazepam	Nimitrazepam	Nitrazepam
	(143)	(43)	(21)	(16)	(9)	(8)	(1)
Less than 15	2.8	2.3	4.7	-	-	-	-
15 - 19	10.3	7.0	4.8	25.0	-	25.0	-
20 - 24	27.6	41.9	28.6	25.0	44.5	37.5	-
Cumulated	40.7	51.2	38.1	50.0	44.5	62.5	-
25 - 29	33.1	34.9	28.6	37.5	22.2	37.5	100.0
30 and above	26.2	13.9	33.3	12.5	33.3	-	-
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 4.25

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR INITIAL USE OF BENZODIAZEPINES

Main Reason for Initial Use	Flunitrazepam	Alprazolam	Triazolam	Lorazepam	Diazepam	Nimitrazepam	Nitrazepam
	(144)	(42)	(21)	(16)	(9)	(8)	(1)
To forget his problems	2.7	2.4	4.8	-	22.2	25.0	-
To experience drugs/curiosity	19.2	9.5	14.3	12.5	11.1	-	-
Influenced by friends	2.1	-	-	-	-	-	-
Due to health problems	1.4	-	4.8	12.5	11.1	-	100.0
Thought he could control use	1.4	2.4	4.8	-	-	-	-
To enhance high	51.4	57.1	57.1	43.8	-	62.5	-
Out of boredom	2.1	-	-	-	-	-	-

TABLE 4.25 (Cont.)

Main Reason for Initial Use	Flunitrazepam	Alprazolam	Triazolam	Lorazepam	Diazepam	Nimitrazepam	Nitrazepam
	(144)	(42)	(21)	(16)	(9)	(8)	(1)
For psychological & physical comfort	2.1	4.8	-	-	11.1	-	-
Because of addiction to opioids	8.9	7.1	-	12.5	33.3	-	-
To induce his appetite	0.7	-	-	-	-	-	-
To substitute for opioids	2.1	2.4	-	-	-	-	-
Sleep disturbance	2.1	-	-	6.3	-	-	-
To suppress with-drawal symptoms	1.4	-	4.8	6.3	-	-	-
Easy availability	-	2.4	-	-	-	-	-
Others	2.4	11.9	9.4	6.1	11.2	12.5	-
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(see Table 4.26 and Graph 4.2, that compares duration of heroin and flunitrazepam use). Flunitrazepam is lowest (just under 40%). Flunitrazepam and alprazolam have been reported to have been used 10 years or more while all other mentioned benzodiazepines did not exceed 6 years use.

Some incorrectness in the addicts' reporting must be suspected for this table. Alprazolam was introduced to the best of the authors' knowledge in 1981 and could hardly have been available in Malaysia before that date. So three cases reporting use longer than 10 years, longer than 8 years, longer than 6 years (one addict for each category) must have made an erroneous statement.

Frequency of Use in the Last Month

Among the benzodiazepines with above 10 reports of use, lorazepam was the least frequently used (18.7% of reported use) and flunitrazepam the most frequently used (65.1% of reported use) (see Table 4.27). Flunitrazepam has also recorded the largest proportion (37%) of daily users when compared to the other benzodiazepines.

The outstanding 75% of nimitrazepam use in the last month (all being daily users) has to be viewed in the light of the total number of 8 nimitrazepam users.

Other Characteristics of Use

All the benzodiazepines were usually consumed orally. Two-thirds or more of the users of each of the benzodiazepines have reported this route of administration of the drug. Other methods of administration such as intravenous injection or sniffing were rarely reported.

Little data are available on dosages used. 13 addicts gave information on dosage of flunitrazepam consumed at one time: 1 addict less than 1 pill, 9 addicts 1 pill (2 mg), 3 addicts 2 pills, none more than 2 pills. No such information is available on the other benzodiazepines.

The following street prices were reported:

Flunitrazepam: M$1.00-1.50 per pill in 52 cases out of 83. 24 addicts bought for less than M$1.00, the price range going from 15 cents to M$1.00 and 7 paid more than M$1.50.

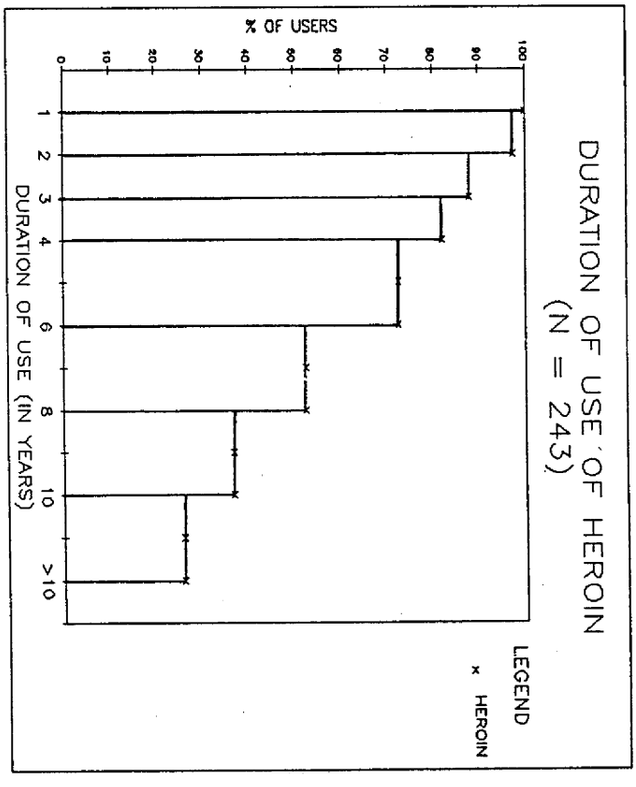
TABLE 4.26

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY DURATION OF USE OF BENZODIAZEPINES

Duration of use (in years)	Flunitrazepam	Alprazolam	Triazolam	Lorazepam	Diazepam	Nimitrazepam	Nitrazepam
	(134)	(38)	(20)	(15)	(6)	(7)	(1)
1 and less	39.7	47.4	50.0	40.0	66.6	42.8	100.0
1.1 - 2	18.4	23.7	25.0	26.7	16.7	28.6	-
2.2 - 3	9.6	5.3	5.0	6.7	16.7	-	-
3.1 - 4	9.6	13.2	20.0	20.0	-	14.3	-
4.1 - 6	13.2	2.6	-	6.6	-	14.3	-
6.1 - 8	5.1	2.6	-	-	-	-	-
8.1 - 10	0.7	2.6	-	-	-	-	-
More than 10	3.7	2.6	-	-	-	-	-
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

GRAPH 4.2

A COMPARISON OF THE DURATION OF USE OF HEROIN AND THE DURATION OF USE OF FLUNITRAZEPAM



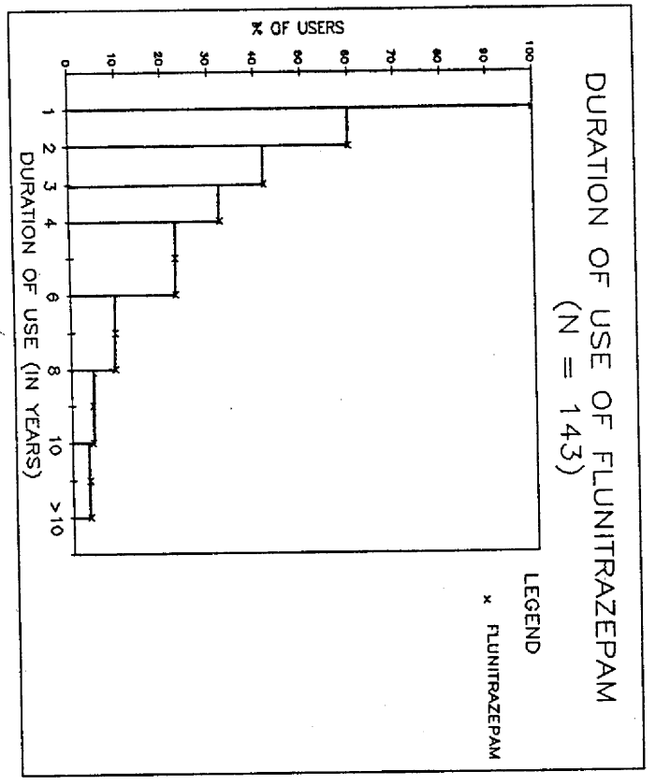


TABLE 4.27

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY FREQUENCY OF USE OF BENZODIAZEPINES IN THE LAST MONTH

Frequency of Use	Flunitrazepam	Alprazolam	Triazolam	Lorazepam	Diazepam	Nimitrazepam	Nitrazepam
	(146)	(41)	(21)	(16)	(9)	(8)	(1)
No Use	34.9	58.5	52.4	81.3	66.7	25.0	100.0
Less than once a week	19.2	-	-	-	-	-	-
Once a week	6.2	9.8	19.0	6.3	-	-	-
More than once a week	2.7	-	-	-	-	-	-
Once daily	6.9	7.3	4.8	-	22.2	12.5	-
2 - 3 times daily	21.9	14.6	-	6.3	-	25.0	-
More than 3 times daily	8.2	9.8	9.5	-	-	37.5	-
Others	-	-	14.3	6.3	11.1	-	-
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

For diazepam the price was reported to be 25-30 cents per pill (4 cases out of 5), 1 reported a price of M$1.00.

Alprazolam was bought most often between 80 cents and M$1.20 (27 cases out of 35). The price range goes from 25 cents to M$2.90 (1 case each).

The price of Triazolam was reported to be usually 50 cents to M$1.50 (8 out of 11 cases), the total price range extending from 20 cents to M$2.00.

The sources for different benzodiazepines were given as follows. Flunitrazepam was obtained mostly from drug pushers (42 out of 90 addicts), from private clinics (22 out of 90), from friends (14 out of 90), the rest from government hospitals, pharmacies and family members.

Diazepam was obtained from private clinics (2 out of five), and the rest from pharmacies, and other sources.

Alprazolam was obtained in 30 (out of 36) users from private clinics, from pharmacies (2), friends (1), drug pusher (1), others (2).

For triazolam the sources were reported as follows: private clinics 4 (out of 13), friends 4, drug pusher 2, others 3.

The fact that the source for flunitrazepam was the drug pushers, in a much higher percentage, than for other benzodiazepines, is probably caused by its status of "dangerous" (and thereby illegal) drug. This may also at the same time partly explain its frequent use: it is obtained together with heroin from the same pusher in a sort of "package deal".

Attention is drawn to the fact that reports by these addicts seemed highly reliable as to heroin use, but not always as precise as to benzodiazepine use when judged by results of urinalysis (see Chapter 6).

CHAPTER 5: NATURAL HISTORY OF ADJUNCTIVE DRUG USE

This chapter focuses on the extent and nature of concomitant use of opioids (particularly heroin) and adjunctive drugs among the addicts studied. For each adjunctive drug data on the purposes of simultaneous or sequential use, the main reason for such use, the predominant route of use, frequency of use in the last 12 months and last 30 days, and the time of use in relation to opioid use will be described.

5.1 Drugs Used Simultaneously With Heroin and Other Opioids

Table 5.1 shows the percentage of respondents who had ever used drugs simultaneously with heroin. Nicotine was the most common drug used simultaneously with heroin. About one in every three addicts had tried combining the use of heroin with alcohol. A similar proportion had used cannabis together with heroin. Benzodiazepines were often used concomitantly with opioids. Half of the addicts had combined flunitrazepam with opioids. A smaller proportion had used other benzodiazepines such as alprazolam, triazolam, lorazepam, nimitrazepam, diazepam and nitrazepam. The other adjunctive drugs mentioned (methaqualone, LSD) were numerically too small to be considered here.

The pattern of multiple drug use differed somewhat between the three groups of addicts. A larger population of addicts from the street (47.8%) and treatment centres (42.7%) had reported the simultaneous use of heroin and alcohol, than addicts from the prison (18.4%). On the contrary, a slightly larger percentage of street addicts (62.7%) had used flunitrazepam simultaneously with heroin as compared to half and less than half of the total number of addicts from treatment and prison respectively. Generally, more addicts who were in treatment had tried dihydrocodeine or the benzodiazepine alprazolam than the other two groups of addicts.

There was some variation in the pattern of combined use of heroin and other drugs between the three ethnic groups. Chinese addicts had seldom combined the use of cannabis and heroin as compared with the other two races. A smaller proportion of Chinese had used flunitrazepam. Alprazolam was more frequently used among the Malays and Indians. Generally, a smaller number of Chinese had used flunitrazepam and alprazolam.

TABLE 5.1

PERCENTAGE OF RESPONDENTS WHO REPORTED THE EVER COMBINED USE OF OPIOIDS AND OTHER DRUGS BY ETHNICITY

Drug Type	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(119)	(76)	(53)	(1)	(249)	(n)
Alcohol	37.8	39.5	37.3	100.0	38.6	(96)
Nicotine	95.0	96.1	96.2	100.0	95.6	(238)
Cannabis	46.2	17.1	34.0	-	34.5	(86)
Methaqualone	1.6	2.6	1.9	-	2.0	(5)
LSD	-	1.3	-	-	0.4	(1)
Flunitrazepam	58.0	42.1	50.9	-	51.4	(128)
Lorazepam	7.6	-	1.9	-	4.0	(10)
Nimitrazepam	5.9	-	-	-	2.8	(7)
Diazepam	1.7	1.3	1.9	-	1.6	(4)
Alprazolam	13.4	5.3	13.2	-	10.8	(27)
Nitrazepam	0.8	-	-	-	0.4	(1)
Triazolam	7.6	1.3	1.9	-	4.4	(11)
Dihydrocodeine	6.7	-	5.7	-	4.4	(11)

Multiple reporting allows percentage to exceed 100%.

Reasons for Combined Use

Table 5.2 provides the reasons for combining the use of heroin and adjunctive drugs. The most frequently reported reason for the use of adjunctive drugs was to intensify the effect of the opioid, i.e. to enhance the feeling of high. Three quarters or more had used the adjunctive drugs to boost the euphoric feeling derived from the primary drug, i.e. heroin. There was no difference between the individual benzodiazepines as to purpose of use.

Other reasons were also reported for the combined use of drugs. A small percentage had used alcohol, flunitrazepam and lorazepam to diminish withdrawal symptoms. The use of diazepam and nimitrazepam was comparatively more common for sleep disturbance.

A minority of addicts had used lorazepam, diazepam, alprazolam, nimitrazepam and dihydrocodeine when they were depressed. Alcohol and cannabis were usually taken when in the company of friends, i.e. to gain acceptance.

Main Reason for Combined Use

The most frequently reported main reason for the combined use of heroin and adjunctive drugs was to enhance the feeling of high (see Table 5.3). It is interesting to note that the percentage of use for boosting the heroin effect is practically the same for all the benzodiazepines listed in Table 5.2. It is around 90% for all benzodiazepines that have been named at least 10 times. This similarity appears also when only the main reason for benzodiazepine use is listed (Table 5.3); the percentage is then around 70%. Dihydrocodeine was sometimes used by heroin addicts to diminish symptoms of withdrawal. Benzodiazepines were the most frequently used drugs for sleep disturbance. Alcohol and cannabis were usually used in the company of friends in order to gain acceptance.

Isolated cases had combined methaqualone, LSD and nitrazepam with heroin, for the main reason of enhancing the feeling of high.

A detailed description of the combined use will be provided below for individual adjunctive drugs.

TABLE 5.2

PERCENTAGE OF RESPONDENTS WHO REPORTED THE REASONS FOR COMBINED USE OF HEROIN AND NON-OPIATE DRUGS

Reasons for combined use	Alcohol	Nicotine	Cannabis	Methaqualone	LSD	Flunitrazepam	Lorazepam	Nimitrazepam	Diazepam	Nitrazepam	Alprazolam	Triazolam	Dihydrocodeine
	(96)	(238)	(86)	(5)	(1)	(128)	(10)	(7)	(4)	(1)	(27)	(11)	(11)
To enhance feeling of high	74.0	97.1	83.7	80.0	100.0	88.3	90.0	85.7	75.0	100.0	92.6	90.9	72.7
To diminish symptoms of withdrawal	9.4	2.1	2.3	-	-	6.3	10.0	-	-	-	3.7	-	54.5
Sleep disturbance	1.0	-	-	20.0	-	7.0	-	28.6	50.0	-	18.5	-	-
To economise on heroin use	-	-	1.2	-	-	3.1	-	-	-	-	3.7	-	-
Somatic symptoms	-	-	-	-	-	0.8	-	-	-	-	-	-	-

TABLE 5.2 (Cont.)

Reasons for combined use	Alcohol	Nicotine	Cannabis	Methaqualone	LSD	Flunitrazepam	Lorazepam	Nitrazepam	Diazepam	Nitrazepam	Alprazolam	Triazolam	Dihydrocodeine
	(96)	(238)	(86)	(5)	(1)	(128)	(10)	(7)	(4)	(1)	(27)	(11)	(11)
Depression	7.3	0.8	3.5	20.0	-	10.2	20.0	14.3	25.0	-	22.2	18.2	9.1
To gain acceptance	40.6	2.1	31.4	-	-	11.7	-	-	-	-	-	-	-
Curiosity	1.0	-	2.3	-	-	0.8	-	-	-	-	-	-	-
To enhance sexual relationship	-	-	1.2	-	-	-	-	-	-	-	-	-	-
To gain appetite	-	-	2.3	-	-	-	-	-	-	-	-	-	-
To create self confidence	-	-	-	20.0	-	-	-	-	-	-	-	-	-

Multiple reporting allows percentage to exceed 100%

TABLE 5.3

PERCENTAGE OF RESPONDENTS WHO REPORTED THE MAIN REASON FOR COMBINED USE OF HEROIN AND NON-OPIATE DRUGS

Main reason for use	Alcohol	Nicotine	Cannabis	Methaqualone	LSD	Flunitrazepam	Lorazepam	Nitrazepam	Diazepam	Nitrazepam	Alprazolam	Triazolam	Dihydrocodeine
	(96)	(238)	(86)	(5)	(1)	(128)	(10)	(7)	(4)	(1)	(27)	(11)	(11)
To enhance feeling of high	41.7	93.3	59.3	60.0	-	71.7	77.8	42.9	25.0	100.0	63.0	81.8	27.3
To diminish symptoms of withdrawal	6.3	2.5	1.2	-	-	3.1	11.1	-	-	-	3.7	9.1	54.2
Sleep disturbance	1.0	-	1.1	-	-	5.5	-	14.3	50.0	-	7.4	-	-
To economise on heroin	-	-	-	-	-	2.3	-	-	-	-	3.7	-	-
Depression	7.3	0.8	3.5	-	-	8.7	11.1	14.3	25.0	-	18.5	-	18.5
To gain acceptance	41.7	3.0	32.6	20.0	-	7.9	-	14.3	-	-	3.7	-	-

TABLE 5.3 (Cont.)

Main Reason for use	Alcohol	Nicotine	Cannabis	Methaqualone	LSD	Flunitrazepam	Lorazepam	Nimitrazepam	Diazepam	Nitrazepam	Alprazolam	Triazolam	Dihydrocodeine
	(96)	(238)	(86)	(5)	(1)	(128)	(10)	(7)	(4)	(1)	(27)	(11)	(11)
Curiosity	-	0.4	-	-	-	0.8	-	-	-	-	-	-	-
To enhance sexual relationship	1.0	-	-	-	-	-	-	-	-	-	-	-	-
To gain appetite	-	-	2.3	-	-	-	-	-	-	-	-	-	-
To create self-confidence	-	-	-	20.0	-	-	-	14.2	-	-	-	-	-
Easy availability	1.0	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	9.1	-
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

5.2 Pattern of Combined Use of Opiates and Individual Adjunctive Drugs

5.2.1 Combined Use of Opiates and Alcohol (n=96)

Reasons for Combined Use

74% of the 96 addicts who had combined the use of opiates and alcohol, wanted to enhance the feeling of high (see Table 5.2). 40.6% of the addicts took alcohol to gain acceptance by friends, whenever they were in the company of friends who were consuming alcoholic drinks. A minority had reported alcohol use to cope with depression, to diminish symptoms of opiate withdrawal, to enhance their sexual activity, and to induce sleep. None of these categories reached 10%. Other reasons such as anxiety, psychosomatic and somatic symptoms were not reported. There was no relevant variation in the reasons reported by addicts from the various groups.

Main Reason for Combined Use (see Table 5.3)

To enhance the feeling of euphoria was the main reason reported by 41.7% of addicts, for the combined use of opiate and alcohol. 41.7% used alcohol to gain acceptance by friends. A small proportion reported the use of alcohol to diminish symptoms of withdrawal and to cope with depression.

A larger proportion of Malays (51.1%) had combined the use of alcohol and heroin to enhance and prolong the effect of heroin as compared to 36.7% of Chinese and 30% of Indians. However, this is not statistically significant.

Frequency of Use

Among the addicts who had combined use of opiates and alcohol, about half (44%) did not do so in the last 12 months. 20.9% had used alcohol once a month, while 35.1% had used it weekly. There are no significant differences between the location and ethnic groups.

The frequency of combination of opiate and alcohol use in the last 30 days was much less compared to the frequency of such use in the last 12 months. Slightly more than half (53.9%) of the addicts who had ever combined the use of opiates and alcohol did not do so in the last 30 days. 19.8% had used alcohol less than once a week. 15.3% had used it weekly. The proportion of daily users was very small (11%).

The frequency of combined use of opiate and alcohol differed little between the three ethnic groups.

Time of Use

Alcohol was usually taken after opiate use; this was reported by 65.2% of the addicts. 23.9% had used it simultaneously with heroin; while another 9.8% consumed alcohol before opiate use. The manner of combined use did not differ between the different groups of addicts.

5.2.2 Combined Use of Opiates and Cannabis (n=86)

Reasons for Combined Use

83.7% of the addicts had combined the use of opiate and cannabis in order to intensify the high derived from heroin (see Table 5.4). A smaller proportion (31.4%) had combined the use of heroin with cannabis when they were in the company of friends who were using the drug. Other reasons were rarely reported. There was some variation between the location groups of addicts. A larger proportion (52.8%) of addicts in treatment had used cannabis to gain acceptance when compared to addicts in the street (33.3%) and prison (8.3%) group (difference statistically significant at 0.001 level).

Main Reason for Combined Use

To enhance the euphoric feeling was the most commonly reported main reason for combining the use of heroin with cannabis. This was reported by 59.3% of the addicts. A sizeable proportion (32.6%) of the addicts had used cannabis to gain acceptance by friends. The other reasons were rarely reported or not reported at all. A larger proportion (80.8%) of prison addicts had reported the use of heroin and cannabis for the main reason of enhancing the "kick" derived from heroin use, as compared to the street addicts (62.5%) and the addicts in treatment (41.7%) (difference statistically significant at 0.01 level). A larger proportion (50%) of the addicts from the latter group took cannabis to gain acceptance by friends as compared to 20.8% of street addicts and 19.2% of addicts in treatment who have reported a similar reason (difference statistically significant at 0.02 level).

A larger proportion of Malays (63.6%) and Indians (61.1%) had used cannabis in combination with heroin for the main reason of enhancing the feeling of high, as compared to 38.4% of Chinese. A larger percentage of

TABLE 5.4

PERCENTAGE OF RESPONDENTS WHO REPORTED THE REASONS FOR COMBINED USE OF OPIATE AND CANNABIS BY ETHNICITY

Reasons for combined Use	Ethnicity				Total	
	Malay	Chinese	Indian	Others		
	(55)	(13)	(18)	(1)	(86)	(n)
To enhance feeling of high	85.5	61.5	94.4	-	83.7	(72)
To diminish symptoms of of withdrawal	3.6	-	-	-	2.3	(2)
To economise on heroin	1.8	-	-	-	1.2	(1)
Depression	5.5	-	-	-	3.5	(3)
To gain acceptance by friends	30.9	53.9	16.7	-	31.4	(27)
Curiosity	1.8	-	5.6	-	2.3	(2)
To enhance sexual relationship	-	7.7	-	-	1.2	(1)
To gain appetite	1.8	7.7	-	-	2.3	(2)

Multiple reporting allows percentage to exceed 100%.

Chinese on the other hand, had used cannabis to gain acceptance by their peers. These difference however, are not statistically significant. To enhance the high was the most commonly reported main reason for the combined use of cannabis and heroin in the three ethnic groups. The other reasons were rarely reported by all three ethnic groups.

Frequency of Use

Among the addicts who had reported the use of heroin together with cannabis, 75.3% indicated such a manner of use in the last 12 months. 17.7% had used cannabis with heroin once a month, another 23.5% more than once a month, but not weekly, and 30.6% were weekly users. The use of cannabis as an adjunctive drug did not vary significantly between the location groups of addicts.

The frequency of use in the last 30 days was slightly less. 62.3% of addicts had used the drug in the last 30 days. 15.3% of the addicts had used cannabis irregularly, i.e. less than once a week, while another 44.6% had used it once or more per week. One in every four addicts were daily users of both cannabis and heroin in the last 30 days.

Cannabis was usually taken after heroin use; this was reported by 62.7% of the addicts who had mentioned the combination of these two drugs. One in every three addicts (31.3%) used the two drugs at the same time. 6% used cannabis before the use of heroin.

5.2.3 Combined Use of Opiates and Benzodiazepines (n=128)

In Chapter 4 (4.3.7) benzodiazepine use was characterised in a general way and also with reference to the individual benzodiazepines as far as possible. The total number (n=128) of addicts with combined use is smaller than the overall number for benzodiazepine use (n=152). This means that 24 cases had reported benzodiazepine use not in combination with opioids.

Combined use of opiates and benzodiazepines has been reported by half of the total number of addicts interviewed (51.4%). Flunitrazepam is the most important substance in this group (see Table 5.5). The large majority used flunitrazepam (and also the other benzodiazepines) in order to enhance the high of heroin. The absolute numbers of the other benzodiazepines are too small to ascertain meaningful differences. Diminishing symptoms of withdrawal is

mentioned as purpose of combined use for all but one of the benzodiazepines. Coping with sleep disturbance and depression were reported as reasons for use in a minority of cases. Peer pressure was reported for use of flunitrazepam by one out of ten. The other categories of reasons are negligible.

Generally, the purposes reported for the use of benzodiazepines did not vary between the different groups of addicts. Each group had mainly used them as a second drug to intensify the effect of the primary drug i.e. heroin.

Main Reason for Combined Use

The most commonly reported reason for combined use was to achieve a better high (see Table 5.6). This reason was reported by two-thirds or more for the more frequently mentioned benzodiazepines. A small proportion used benzodiazepines primarily to reduce withdrawal symptoms or to induce sleep or to cope with depression. The other reasons were rarely reported. The figures of Table 5.6 show some differences in percentage for the individual benzodiazepines, but again the numbers are too small to ascertain significant differences.

The pattern of main reasons reported for combined use of opiates and benzodiazepines did not differ between the groups of addicts.

Predominant Route of Use

Benzodiazepines were taken orally by a majority of addicts. Slightly more than half of the addicts had used flunitrazepam by this route (see Table 5.7). A minority had used flunitrazepam intravenously. Other routes were rarely reported. For the other benzodiazepines, the oral administration predominated even more.

Frequency of Combined Use in the Last 12 Months

One-fifth of the addicts did not report this use over the last 12 months (see Table 5.8). The distribution between the two most frequently used benzodiazepines (flunitrazepam and alprazolam) in the categories of frequency in time is comparable, a sizeable proportion having used those drugs daily or almost daily. Again the number of the users of other benzodiazepines was too small to be discussed.

TABLE 5.5

PERCENTAGE OF RESPONDENTS WHO REPORTED THE REASONS FOR COMBINED USE OF OPIATES AND BENZODIAZEPINES BY TYPES OF BENZODIAZEPINES

Reason for Combined Use	Flunitrazepam	Alprazolam	Lorazepam	Nimitrazepam	Diazepam	Nitrazepam	Triazolam
	(128)	(27)	(10)	(7)	(4)	(1)	(11)
To enhance feeling of high	88.3	92.6	90.0	85.7	75.0	100.0	90.9
To diminish symptoms of withdrawal	6.3	3.7	10.0	28.6	-	-	18.2
Sleep disturbance	7.0	18.5	-	-	50.0	-	-
To economise on heroin	3.1	3.7	-	-	-	-	-
Somatic symptoms	0.8	-	-	-	-	-	-
Depression	10.2	22.2	20.0	14.3	25.0	-	-
Agitation	0.8	-	-	-	-	-	-
To gain acceptance by friends	11.7	-	-	-	-	-	-
Curiosity	0.8	-	-	-	-	-	-

Multiple reporting allows percentage to exceed 100%.

TABLE 5.6

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY MAIN REASON FOR COMBINED USE OF OPIATES AND BENZODIAZEPINES

Main reason for combined use	Flunitrazepam	Alprazolam	Lorazepam	Nimitrazepam	Diazepam	Nitrazepam	Triazolam
	(128)	(27)	(9)	(7)	(4)	(1)	(11)
To enhance feeling of high	71.7	63.0	77.8	42.9	25.0	100.0	81.8
To diminish symptoms of withdrawal	3.1	3.7	11.1	-	-	-	9.1
Sleep disturbance	5.5	7.4	-	14.3	50.0	-	-
To economise on heroin	2.3	3.7	-	-	-	-	-
Depression	8.7	18.5	11.1	14.3	25.0	-	-
Agitation	-	-	-	-	-	-	-
To gain acceptance by friends	7.9	-	-	14.3	-	-	-
Curiosity	0.8	3.7	-	-	-	-	-
Others	-	-	-	14.2	-	-	9.1
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 5.7

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY PREDOMINANT ROUTE OF USE OF BENZODIAZEPINES IN RELATION TO OPIATES

Predominant Route of use	Flunitrazepam	Alprazolam	Lorazepam	Nimitrazepam	Diazepam	Nitrazepam	Triazolam
	(128)	(27)	(9)	(7)	(4)	(1)	(11)
Eat/drink	54.7	70.4	88.9	85.7	100.0	100.0	90.9
Smoke	3.9	-	-	-	-	-	-
Chase the dragon	0.8	-	-	-	-	-	-
Inject	40.6	29.6	11.1	14.3	-	-	9.1
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The frequency of use varied between the three groups of addicts. A larger proportion (81.9%) of addicts from the prison were weekly users of flunitrazepam as compared to 47.6% of addicts from the streets and 49.1% of addicts in treatment (difference statistically significant at 0.01 level). A sizeable proportion (31%) of the addicts from the streets were irregular users of flunitrazepam, i.e. had used the drug less than once a week in the last 12 months.

The frequency of use in the last 12 months did not differ between the three ethnic groups.

Frequency of Combined Use in the Last Month

This frequency is around 70% for the two most often named benzodiazepines (see Table 5.9). For the other benzodiazepines the percentage of non-users varies widely but again the numbers are too small. The daily use of flunitrazepam and alprazolam was around 40%.

Time Relation for Intake of Opiates and Benzodiazepines

The majority of addicts used the two drugs concomitantly, a minority in sequence. The pattern for flunitrazepam and alprazolam is very similar (see Table 5.10). The other benzodiazepines again were not used frequently enough to be compared in a meaningful way.

There was no difference in respect to the time relation between the different groups of addicts.

TABLE 5.8

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY FREQUENCY OF COMBINED USE OF OPIATES AND BENZODIAZEPINES IN THE LAST 12 MONTHS

Frequency of Use	Flunitrazepam	Alprazolam	Lorazepam	Nimitrazepam	Diazepam	Nitrazepam	Triazolam
	(128)	(27)	(9)	(7)	(4)	(1)	(11)
No Use	22.7	14.8	55.6	14.3	-	-	27.3
Once a month	5.5	22.2	22.2	28.6	50.0	100.0	18.2
2 - 3 times a month	14.8	7.4	-	14.3	-	-	9.1
Once a week	5.5	7.4	-	-	25.0	-	9.1
2 - 3 times a week	7.0	11.1	22.2	-	25.0	-	18.2
4 - 5 times a week	0.8	3.7	-	-	-	-	-
6 - 7 times a week	40.6	33.4	-	42.8	-	-	9.1
Others	3.1	-	-	-	-	-	9.0
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 5.9

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY FREQUENCY OF COMBINED USE OF OPIATES AND BENZODIAZEPINES IN THE LAST MONTH

Frequency of Use	Flunitrazepam	Alprazolam	Lorazepam	Nimitrazepam	Diazepam	Nitrazepam	Triazolam
	(128)	(27)	(9)	(7)	(4)	(1)	(11)
No use	29.1	29.7	66.7	14.3	25.0	100.0	45.5
Less than once a week	4.7	14.8	-	28.6	50.0	-	9.1
Once a week	3.9	3.7	-	14.3	-	-	9.1
More than once a week	13.4	14.8	22.2	-	25.0	-	18.2
Once daily	5.5	14.8	-	14.3	-	-	-
2 - 3 times daily	29.1	18.5	-	14.3	-	-	
More than 3 times daily	9.4	3.7	-	14.3	-	-	9.1
Others	4.7	-	11.1	-	-	-	9.1
All Categories	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 5.10

TIME RELATION FOR INTAKE OF OPIATES AND BENZODIAZEPINES

Time of use	Flunitrazepam	Alprazolam
	(128)	(27)
Benzodiazepine taken before opiate	12.8%	11.1%
Concomitant use	64.0%	63.0%
Benzodiazepine taken after opiate	21.6%	25.9%
Others	1.6%	-
All Categories	100.0%	100.0%

6.1 Introduction

Urinalysis was one of the instruments utilised in this study to assess the reliability of information reported by the heroin addicts selected for this study. It was carried out specifically to verify the reports on the use of heroin, cannabis and flunitrazepam. Sixty-two urine samples were collected from the 67 street respondents during the time of interview with these respondents.

6.2 Methods Used

The methods employed for qualitative (screening) detection of each of the drugs is as follows. Thin-layer chromatography was used for the detection of morphine in the urine (Navaratnam, et al. 1985).

For the detection of cannabis, the gas chromatography (GLC) method developed by Rajananda et al. (1985) was employed. The method developed by Navaratnam et al. (1985) and Bakavoli et al. (1984) was used to screen for benzodiazepines in the urine.

Generally the methods were used to confirm the presence or absence of these three drugs in the urine, regardless of drug concentration levels.

6.3 Results of the Urinalysis

The results of the urinalysis are presented in Table 6.1. All the sixty two respondents had reported the use of heroin in the last 24 hours (prior to the interview). The test for morphine indicated positive results in 52 (83.9%) of these 62 urine samples. In 10 samples (16.1%) morphine could not be detected. This reveals that the reports on heroin use was highly reliable.

TABLE 6.1

RESULTS OF URINALYSIS

Reported Use in Last 24 Hours	Results of Urinalysis	
	Consistent	Inconsistent
1. Heroin		
Yes = 62	52 (83.9%)	10 (16.1%)
No = 0	0	0
2. Cannabis		
Yes = 6	0	6
No = 56	51	5
3. Flunitrazepam		
Yes = 14	5	9
No = 48	32	16

The screening for cannabis showed that there were discrepancies in reporting in 11 (17.7%) cases. Reported use of cannabis by the 6 cases were not confirmed by the urinalysis. This could well be that the method used was not sensitive enough to detect the presence of cannabis, since it requires a minimum concentration of 25-50 ng/ml of tetrahydrocannabinol acid. In 5 of the 56 cases who reported non-use of cannabis, positive results were observed in the urine. This indicates a very small amount of misreporting in general.

A sizeable amount of discrepancy was noted in the report of the use of flunitrazepam. The urinalysis for flunitrazepam had confirmed the reports of 5 of the 14 cases who reported the use of the drug in the last 24 hours. In the rest (9 cases) the results were negative. Among the 32 of the 62 cases that reported non-use of flunitrazepam in the last 24 hours, in 16 cases the results were positive indicating use.

These results will be commented in the discussion (Chapter 7.2).

CHAPTER 7: DISCUSSION AND CONCLUSIONS

7.1 Introduction

This study had two main objectives. The first was to describe the natural history of addiction to heroin (the most frequently used of opioid drugs) over time, and the second to examine the pattern of adjunctive drug use. The facts presented in the previous chapters will now be discussed.

Patterns of use of heroin and other opiates show differences based on cultural, racial, economic, social, educational and other factors. These factors may vary from one country to another and among different settings of the same country. This study, performed in and around Penang by the Centre for Drug Research, is compared to several earlier studies and reports by the Centre (Navaratnam, et al. 1983, Foong and Navaratnam, 1987a and 1987b).

7.2 Description of the Sample

As the three location groups (street/treatment centres/prison) were collected by different methods (snowball technique for the street sample, purposive sampling for the other two groups) the question must be raised how far these groups are representative for the population. Ethnicity served as cross variant to examine this question.

Table 2.2 seems to show in the column "all respondents" an underrepresentation for Malays and an overrepresentation of the two other ethnic groups in this study when compared with the Population Estimates for West Malaysia of 1985 for males (see Table 7.1) (Reference: Department of Statistics). However, comparing the data of this study with the same estimate for males of Penang state the relations are reversed; the Malays seemed overrepresented in this study, the Chinese grossly and the Indians moderately underrepresented.

It has to be borne in mind that the street sample was collected in Penang, catching also some floating addicts from outside Penang. However, Treatment Centres and Prison serve a much wider area with different ethnic percentages (mainly less Chinese and more Malays). Therefore population figures for Kedah State were extracted and eventually combined with the figures from Penang State (last column). These last figures probably best represent the investigation area.

TABLE 7.1

ETHNIC DISTRIBUTION OF STUDY SAMPLE
AND MALE POPULATION OF WEST MALAYSIA AND SELECTED STATES

	Study Sample (n=249)	Male Population			
		W. Malaysia	Penang	Kedah	Kedah & Penang
Malay	47.8%	56.3%	33.4%	72.3%	54.6%
Chinese	30.5%	32.8%	53.4%	18.4%	34.3%
Indian	21.3%	10.2%	12.0%	7.7%	9.6%
Others	0.4%	0.7%	1.2%	1.6%	1.4%
	100%	100%	100%	100%	100%

When all these factors are taken into account, the sample of this study seems fairly representative for the population in the investigation area. Another factor that might have some (minor) role was the snowball technique used to collect the street sample. As the field worker collecting this sample was a Malay, it might well have been that he had easier access to the Malay sector of the drug subculture than to other ethnic groups. This may have resulted in a slight overrepresentation of Malays in the present sample.

It cannot be finally decided how much weight has to be attributed to each of the mentioned possible factors but it can be said with confidence that the sample does not show a major distortion in ethnic distribution.

Age (bulk between 25 and 35), marital status (only 15% married), educational attainment (only a small minority exceeding lower secondary school) and occupation (majority unemployed or labourers) of this sample are in consonance with previous findings in heroin addiction (Foong & Navaratnam, 1987a and 1987b).

In consonance with earlier findings, almost half of the sample had started heroin in their teens, almost four-fifth before the age of 25 years, the median age for first heroin use being just below 20 years.

The criminal history of this sample is summarised in tables 2.6 to 2.10 and shows a high rate of criminality. The most frequent reasons for arrest and imprisonment were drug related offences and active income generating ("gain active") crimes. The fact that respondents from prison and street had a higher level of criminality compared to those in treatment (see Table 2.8) is explained by the strategy of selection for treatment: the younger addicts have priority, which is also reflected in the younger age of the treatment group as compared to respondents from street and prison (see Table 2.1).

7.3 Critical Evaluation of the Methodology Used in this Study

As this study was based on interviews of heroin addicts urinalysis was included in the design of the study in order to be able to check at least some of the addicts' answers given in the interview.

Urinalysis was performed in 62 of the 67 addicts from the street sample. It showed an excellent correlation between reports of the addicts on heroin and cannabis consumption and the results of urinalysis. The reports on benzodiazepine intake could less well be substantiated from urinalysis. There were some false positive and some false negative reports. This may be due to the multiplicity of benzodiazepine substances involved leading to difficulties for the addicts to give correct answers. Another factor that should be taken into consideration is the availability of counterfeit benzodiazepines where the bioavailability of the substance is questionable as they are not manufactured under controlled conditions. Furthermore, in some instances these counterfeits, in reality, may not contain the reported substance. Hence, it is possible that addicts who may consider themselves to have taken a benzodiazepine may well be consuming aspirin or alternatively the tablet may not release the benzodiazepine substance on consumption. These factors may also have contributed to discrepancies noted in the results of the urine test.

Some inaccuracies could be spotted in the reported length of time, addicts had taken benzodiazepines.

19 addicts were reinterviewed in order to check the data reported in the first interview. The results of the first interview were fully confirmed.

Internal consistency checks both manually and using the computer were done and indicated minimal error.

Therefore the authors consider that the data presented from interviews largely reflect the reality.

7.4 Natural History of Heroin Addiction

Heroin is the main drug of abuse in Malaysia; however in the natural history of heroin addiction it is not the first drug of abuse in temporal sequence. Before heroin was first ever used by later addicts, usually use of nicotine (cigarette smoking), of alcohol and of cannabis preceded. The use of two major adjunctive drugs, opium and benzodiazepines, starts only after the use of heroin. The sequence of adjunctive drug use in heroin addicts will be discussed later.

In the development of heroin use four stages have been distinguished: initial, intermittent, regular and daily use; (for definitions see Chapter 3.2). Half of the addicts (50.2%) went from initial use straight on to daily use, a quarter (25.4%) from initial to regular and then to daily use. The last quarter showed a phase of intermittent use. The stage of addiction was reached in less than one year since the first use in 76% and in less than two years in 94% of the cases.

The main reasons for the first use of heroin given by the addicts was curiosity (almost 60%). Influence by friends was reported only by 16%, the rest being divided in many categories. Morphine had similar reasons for first use.

Heroin use once started, pleasure seeking was the most frequent reason for continuing heroin use, leading to continuous daily use and to addiction. The reason for continuous daily use was avoidance of withdrawal symptoms in just over 70% and pleasure seeking in 20%.

It is very apparent that heroin use, starting mainly out of curiosity, was continued for pleasure seeking and led finally to addiction necessitating continuous daily use to avoid withdrawal symptoms. This is the first part of the natural history of heroin addiction. What happens in the years to follow, i.e. in the chronic phase? In order to find an answer to this question, out of the 249 addicts, cases in their eighth and ninth year after first use of heroin were selected; there were 27 subjects. Their careers were studied.

None of the 27 addicts had been on heroin continuously; all had voluntary interruptions of their habit. These interruptions were terminated by relapse which led to the start of a new cycle. The average number of cycles was 3.5. The total time of the drug free periods was most often 20-40% of the time of heroin use. One addict was drug free for more than 65% of the total time of heroin use, 9 cases less than 20% of the time; the average was 30%.

Incarceration and attempts of treatment were the reasons to terminate a cycle. Only 12 addicts of this subgroup had received treatment, 15 had not. Duration of treatment was short, on average less than one month. 23 out of the 27 reported that they had tried to "kick the habit" at least once. Only 4 cases had never abstained voluntarily. The average duration of voluntary abstinence was 11 months.

The criminal history of this group of 27 longstanding addicts shows that only 3 had never been incarcerated; 24 had between one and four periods of incarceration; the time spent in prison was on average 16 months. These figures may seem high, but they are in rough consonance with the figures of the total sample given in Chapter 2.3; over 60% of the total sample had been previously imprisoned. Criminality is high among heroin addicts.

7.5 Natural History of Adjunctive Drug Use

For an understanding of the development of drug using behaviour the sequence of drugs used as first, 2nd, 3rd (up to the 10th) drug ever used has been investigated. This is the first time ever a study of this kind has been carried out in Asia if not globally. Nicotine is overwhelming in the category of first drug ever used, alcohol is moderate in importance as first drug. Alcohol and cannabis are prominent as 2nd and 3rd drugs, heroin being cited by 10% as 2nd drug, increasing to almost 30% in the 3rd drug category and reaching its peak (51.5%) as the 4th drug. Hence nicotine, alcohol and cannabis precede heroin in an overall way. Other adjunctive drugs become important only after establishment of the heroin addiction. Among those secondary adjunctive drugs, opium and benzodiazepines are the only numerically important groups. Other opiates, methaqualone, cocaine and other psychoactive substances are numerically insignificant. The bulk of opium use started in this sample mostly as 4th and 5th drug, while the peak of first benzodiazepine use lies clearly in the position of 5th drug.

For starting alcohol peer influence and pleasure seeking were the most frequently reported reason, while for cannabis it was peer influence and curiosity (each about 40%).

Opium was quoted mainly as 4th and 5th drug, that is later than heroin. Curiosity was only given in 15% as initial reason, the two numerically most important reasons being pleasure seeking and attempt to quit heroin. Opium shows here a pattern different from heroin; it has partly the character of an equivalent for heroin in pleasure seeking behaviour, and partly of a substitution drug in order to quit the heroin habit. This explains why most addicts had given up opium use in the course of their career and had used it only rarely in the last month.

The other group of adjunctive drugs, use of which is started only after establishment of the heroin habit, are the benzodiazepines. They came in even later than opium, when heroin addiction was already well established. To enhance the high of opioids was the most often reported reason (around 50%) for first use. Curiosity and addiction to opioids were the next in frequency. About one-fifth of the reasons reported for first use can be qualified as therapeutic attempts (addiction to opioids, sleep disturbances, etc.). Over 60% of the users continued the use of benzodiazepines in order to enhance the high from opiates. The late start of use of benzodiazepines is also reflected by the fact that the highest percentage of all the seven benzodiazepines is in the category of less than one year of total duration of use (see Graph 4.2), and, on the other hand, a relatively high use during the last month. Thus benzodiazepines seem to be, in the chronic state of heroin addiction, the most important adjunctive drug, in spite of the fact that they are the last of all relevant adjunctive drugs to be used in heroin addiction.

The temporal sequence of benzodiazepine use in heroin addicts is analysed in more detail in Table 3.1. In the rank order the bulk of heroin first use is in the category of 4th drug; however the bulk reported for benzodiazepine first use is in the category of 5th drug. Opium use develops between the heroin and the benzodiazepines (bulk in 4th and 5th drug rank). The temporal sequence is here analysed further by tabulating age at first use for heroin and for benzodiazepines. This allows to determine the time lapse between the use of these two drugs.

Table 7.2 shows the average age ("mean") of first opioid use and first benzodiazepine use, as well as the age by which 10% ("10 saturation"), 25% ("1st quartile"), 50% ("median"), 75% ("3rd quartile") and 90% ("90% saturation") of the heroin addicts had first used heroin and benzodiazepines respectively. The start of the first 10% of the cases is 3 years later for the benzodiazepines, increasing to 6 years for the 3rd quartile and for the 90% saturation. The calculation of the two means shows a statistically highly significant difference between the two groups.

If the fact is taken into account that within 2 years since first use of heroin, 94% of the users had progressed to chronic daily use of heroin (addiction), the overwhelming majority of addicts must have been addicted for several years before they used benzodiazepines for the first time. The data on duration of use of heroin and of flunitrazepam (the most frequently used benzodiazepine in this sample and representative for the whole group of benzodiazepines) are shown in Graph 4.2.

Evidently heroin use is of much longer duration than the benzodiazepine use (Graph 4.2). At the same time benzodiazepine use starts 3 to 6 years later than heroin use.

TABLE 7.2

AGE AT FIRST USE OF OPIOIDS AND BENZODIAZEPINES

	n=245 Opioids		n=152 Benzodiazepines	
	%	Age in years	%	Age in years
10% saturation	10%	15	5.9%	18
1st quartile	25%	17	14.8%	21
Median	50%	20	29.6%	25
Mean		21.2*		25.8*
3rd quartile	75%	23	44.4%	29
90% saturation	90%	27	53.3%	33

* difference statistically significant at 0,1 permille level (0.0001)

In spite of its late onset, benzodiazepine use is more often used in the late stage (last 30 days) of the chronic phase of heroin addiction than other comparable adjunctive drugs. Their use as adjunctive drugs (38%) surpasses in the last 30 days slightly use of alcohol (34%). Both are higher than cannabis (19%). Opiates were used by 94% in the last month. The difference is even more marked in the last 24 hours; 94% used opiates, 26% benzodiazepines, 13% alcohol, 12% cannabis. In the same period benzodiazepines alone were used only by about 1% of the addicts (Tables 4.4 and 4.5).

In summary the benzodiazepines start as the last group of the more important adjunctive drugs, several years after first heroin use. In the chronic state they become the most frequently used adjunctive drug, even if it is only a minority of opiate addicts who have used them in the last month (just over one third of the opiate addicts). An even smaller minority had used benzodiazepines in the last 24 hours (just over one-fourth).

These findings may be explained at least partly by economic reasons. Comparing the prices for heroin and benzodiazepines in Malaysia it becomes economical to enhance the heroin effect by a relatively cheap benzodiazepine, when a high tolerance for heroin has developed so that a heroin dose higher than average is needed to achieve the desired effect. The benzodiazepine use in the illicit drug scene has expanded since the increase of efforts to control heroin availability which has led to increases of prices of heroin.

It is evident not only from the time course of drug use, but also from the reasons given for use, that benzodiazepines are not primary drugs of abuse. In no instance pleasure derived from the benzodiazepine itself was given as a reason for benzodiazepine use. The small base for information available in this study on the low dosages of benzodiazepine used supports this suggestion. The relatively low price (easy availability) of heroin may be the cause that benzodiazepines are neither found in this investigation to become secondarily a problem of their own in the heroin drug scene, as it has been reported anecdotally from other countries.

The greater frequency of use of flunitrazepam among the seven benzodiazepines used by this sample of addicts is of interest. Almost all (96.1%) addicts who had used benzodiazepines at all had also used flunitrazepam. There are no pharmacological or pharmacokinetic data to explain the preference for this substance over the other benzodiazepines used by the heroin addicts of this study. It is well known and has been published earlier (Navaratnam and Jaya, 1984 quoting from Ladewig) that in the therapeutic scene flunitrazepam has an abuse potential similar to that of other benzodiazepines. However in the field of drug addiction unequal popularity of individual benzodiazepines occurs. In a recent German report on 1217 admittances for substance abuse for addiction (Poser, 1985), flunitrazepam ranks as the last of the 21 abused substances registered, among which there are 11 benzodiazepines. Perera et al. (1987) have investigated a sample of 79 drug (mainly heroin) addicts in Sheffield in England. 71 (90%) of them had used a total of nine different benzodiazepines as adjunctive drugs. Flunitrazepam was named only once, ranking again at the bottom of the nine benzodiazepines. No rational explanantion for these differences in preference in different addict populations is possible on the basis of the existence of unique properties of flunitrazepam. This indicates some irrationality in use and abuse of substances in the heroin scene. Factors of a different nature must be considered. Local fashion ("drug fads") may be an important factor. As it has been published earlier (Navaratnam and Jaya, 1984), "a multifactorial assessment of abuse factors need to be considered, taking into account consumption/market share, time since introduction, prescription frequency, number of patients exposed to each benzodiazepine, popularity, price etc. However no formula can yet be offered for this multifactorial analysis". In the

illicit drug scene, availability is a most important factor. As can be seen from the prices flunitrazepam is easily available in spite of the fact that it has been declared a "dangerous drug" in Malaysia in 1983. This easy availability is due not to diversion from pharmacies but to smuggling from outside the country.

7.6 Implication for Policy

Heroin is of primary importance in Malaysia's drug problem. It is the one drug that causes the biggest social damage. Its use is generally preceded by the use of three other habit forming substances, nicotine (cigarette smoking), alcohol and cannabis. The role of these forerunners for the later development of heroin use is not clear. Are they pacemakers for heroin addiction? Or is that sector of the population that smokes cigarettes and uses alcohol and cannabis already a preselection of those personalities who later may succumb to heroin? It may well be that cannabis use, mainly started out of curiosity, gives rise to readiness to experiment with further drugs and may thus lead to experimenting with heroin, which, once started, leads quickly to addiction. There are no data to give a conclusive answer to these (and other) important questions. It may well be that the endeavor to reduce demand for heroin to prevent addiction to it has to start with preventive educational measures also on the forerunners of heroin use. Further studies are needed to establish a consistent prevention programme.

The heroin addiction once established treatment seems to show a rather poor prognosis as far as availability of treatment as well as results. An average duration of treatment of 0.6 month for the subsample of 27 heroin users with over 8 and 9 years is not impressive as an overall endeavour to rehabilitate addicts from their habit. Their reported length of treatment is hardly sufficient time needed for detoxification and certainly inadequate for successful rehabilitation. Malaysia has heavily invested in the field of rehabilitation of former heroin addicts but obviously the rewards are not matching and much is needed to improve the situation. Therefore critical evaluation studies on effectiveness of the existing different rehabilitation schemes remain a priority.

The results of treatment in the sample of the 27 addicts whose career was studied seem disappointing. All of them relapsed in a short time. However there is a sample bias in this. Those addicts who had had successful treatment, i.e. had been rehabilitated, would not show up in this study, because only actual addicts were selected. Here again longitudinal studies would be of help, be it through a prospective study of a sample of heroin addicts followed over time (and treatment), or be it through a katamnestic study on a retrospective sample. This latter type is on the planning stage at the Centre.

Once heroin addiction is established, two major adjunctive drugs enter the field, secondary in time to heroin: opium and the benzodiazepines.

Opium serves the purposes of producing pleasure (similar to heroin) and of attempting to quit the heroin addiction. Its use is cheaper than the use of heroin, an economic factor that may play its part. Economic factors have been considered in the section on the natural history of adjunctive drug use.

The bulk of benzodiazepine use comes in late, even after opium in this study, when the heroin addiction was already well established and longstanding.

The present study has clearly shown, by establishing for the first time a temporal sequence of drug use in the career of heroin addicts, that benzodiazepines are not primary drugs of abuse. Their increasing use can be explained at least partly on economic grounds, that is through an increase in heroin price in the last decade through more effective control. This would be in consonance with the results by Perera in England, where heroin price is much higher than in Malaysia. 90% of his addicts used benzodiazepines, as opposed to 60% in Malaysia.

This means that by eliminating the heroin problem by prevention the problem of the adjunctive use of benzodiazepines might also disappear. However more successful control of opioids without concurrent demand reduction efforts on the other hand might well raise their price so much that the abuse of other drugs might become a major problem. The implication for policy that this study suggests, is that prevention through education and other means must remain the primary national strategy. Further it suggests that the emphasis on eliminating the availability of the primary drugs of abuse and their precursors seems more valuable and beneficial in the long-term rather than attempting to implement multi-dimensional controls of all drugs - primary and secondary.

Finally the limited practical results of national control measures in Malaysia have to be considered. In spite of stringent national legislation including death penalty for the most severe offences in drug trafficking, heroin, opium, and cannabis are still available though at a much lower scale. The implementation of national legislation has effectively reduced availability but not eliminated it. This is also true for the group of benzodiazepine substances. Flunitrazepam has been considered a "dangerous drug" in Malaysia since 1983. This means it can be dispensed with special permission only and stringent rules apply in relation to importation. Since being placed on this restricted list, there has been no legal importation of flunitrazepam. However it still is available in

the drug scene. It is illegally smuggled into the country. Recently other benzodiazepines have began to substitute for flunitrazepam which would indicate that controlling a single substance of a group may facilitate the abuse of other substances of the same group.

International control through the Convention on Psychotropic Substances is strongly supported, however the listing of these substances has had little, if any effect, in our instance. All benzodiazepines were prescription items and flunitrazepam had already been under more stringent national control even prior to international action. In spite of conjoint efforts, illegal availability to-date has not been affected.

Summing up heroin is the primary drug problem in Malaysia. Nicotine, alcohol and cannabis the use of which generally precedes the use of heroin, appears to put these users at a higher risk for future heroin abuse. Control efforts for heroin were partially successful and led to a certain shortage of heroin in the drug scene and thereby to an increase in price. This economic factor goes parallel to an increase of use of adjunctive drugs by the chronic heroin addicts. Opium and benzodiazepines are the most frequently quoted adjunctive drugs among heroin addicts. They are used mainly to enhance the euphoric feelings derived from heroin and for non-medical therapeutic purposes. Flunitrazepam was the most frequently reported benzodiazepine. The decision to control it more stringently since 1983 has not eliminated its availability in the drug scene. A possible reduction in its availability has led addicts to use other less stringently controlled benzodiazepines, showing thereby a substitution phenomenon. One could infer from these findings that at both national and international levels control decisions must be matched with their implementation. Further where disparity exists between national and international control decisions, they might be of little value, or even counterproductive in some instances. It is therefore essential that control decisions be harmonized between international and national bodies. Prevention of the primary problem of heroin abuse would concurrently be matched by a reduction of adjunctive drug use, whereas enforcement measures per se might not produce this generalized effect - reduction and finally elimination of the total drug abuse problem.

ANNEX 1

AGE AT FIRST USE OF OPIOIDS AND BENZODIAZEPINES OF EACH CASE

Case No.	Age at First Use of Opioids (in years)	Age at First Use of Benzodiazepines (in years)	Time lag between use of opioids and use of benzodiazepines (in years)
1.	25	33	8
2.	21	18	- 3
3.	20	20	0
4.	27	27	0
5.	29	32	3
6.	20	25	5
7.	15	22	7
8.	20	22	2
9.	23	29	6
10.	19	27	8
11.	22	28	6
12.	19	20	1
13.	19	22	3
14.	16	32	16
15.	23	31	8
16.	20	32	12
17.	26	42	16
18.	22	22	0

Case No.	Age at First Use of Opioids (in years)	Age at First Use of Benzodiazepines (in years)	Time lag between use of opioids and use of benzodiazepines (in years)
19.	12	17	5
20.	23	28	5
21.	14	19	5
22.	27	37	10
23.	21	26	5
24.	20	34	14
25.	20	25	5
26.	19	26	7
27.	17	20	3
28.	23	35	12
29.	22	29	7
30.	20	19	- 1
31.	23	32	9
32.	26	38	12
33.	26	33	7
34.	18	26	8
35.	22	27	5
36.	24	26	2
37.	19	9	- 10
38.	18	20	2
39.	16	22	6
40.	17	20	3

Case No.	Age at First Use of Opioids (in years)	Age at First Use of Benzodiazepines (in years)	Time lag between use of opioids and use of benzodiazepines (in years)
41.	17	23	6
42.	21	44	23
43.	18	34	16
44.	17	20	3
45.	20	25	5
46.	26	29	3
47.	22	23	1
48.	21	24	3
49.	26	26	0
50.	26	29	0
51.	23	25	2
52.	19	24	5
53.	15	20	5
54.	18	21	3
55.	14	15	1
56.	23	25	2
57.	14	13	- 1
58.	17	24	7
59.	22	22	0
60.	22	29	7
61.	24	33	9
62.	16	23	7
63.	17	20	3

Case No.	Age at First Use of Opioids (in years)	Age at First Use of Benzodiazepines (in years)	Time lag between use of opioids and use of benzodiazepines (in years)
64.	24	29	5
65.	17	23	6
66.	20	22	2
67.	27	31	4
68.	22	23	1
69.	24	25	1
70.	15	21	6
71.	17	24	7
72.	24	27	3
73.	22	35	13
74.	17	21	4
75.	22	31	9
76.	22	23	1
77.	19	27	8
78.	18	25	7
79.	16	16	0
80.	18	26	8
81.	17	30	13
82.	16	20	4
83.	15	33	18
84.	24	32	8
85.	27	29	2

Case No.	Age at First Use of Opioids (in years)	Age at First Use of Benzodiazepines (in years)	Time lag between use of opioids and use of benzodiazepines (in years)
86.	14	17	3
87.	16	14	- 2
88.	16	19	3
89.	17	25	8
90.	20	25	5
91.	19	25	6
92.	30	35	5
93.	23	26	3
94.	20	19	- 1
95.	14	14	0
96.	18	18	0
97.	20	21	1
98.	24	26	2
99.	15	27	12
100.	15	17	2
101.	23	36	13
102.	23	29	6
103.	20	30	10
104.	17	28	11
105.	25	34	9
106.	22	29	7
107.	18	18	0

Case No.	Age at First Use of Opioids (in years)	Age at First Use of Benzodiazepines (in years)	Time lag between use of opioids and use of benzodiazepines (in years)
108.	25	36	11
109.	20	21	1
110.	16	20	4
111.	25	25	0
112.	15	17	2
113.	29	27	- 2
114.	14	18	4
115.	20	23	3
116.	23	28	5
117.	20	26	6
118.	22	32	10
119.	18	21	3
120.	20	26	6
121.	21	24	3
122.	19	21	2
123.	21	37	16
124.	19	25	6
125.	17	16	- 1
126.	24	22	- 2
127.	23	48	25
128.	22	31	9
129.	23	33	10

Case No.	Age at First Use of Opioids (in years)	Age at First Use of Benzodiazepines (in years)	Time lag between use of opioids and use of benzodiazepines (in years)
130.	20	27	7
131.	19	19	0
132.	20	21	1
133.	17	24	7
134.	21	30	9
135.	22	22	0
136.	22	18	- 4
137.	17	23	- 6
138.	17	15	- 2
139.	17	25	8
140.	21	26	5
141.	26	27	1
142.	16	26	10
143.	19	22	3
144.	23	26	3
145.	24	26	2
146.	14	32	18
147.	31	35	4
148.	30	32	2
149.	21	32	11

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